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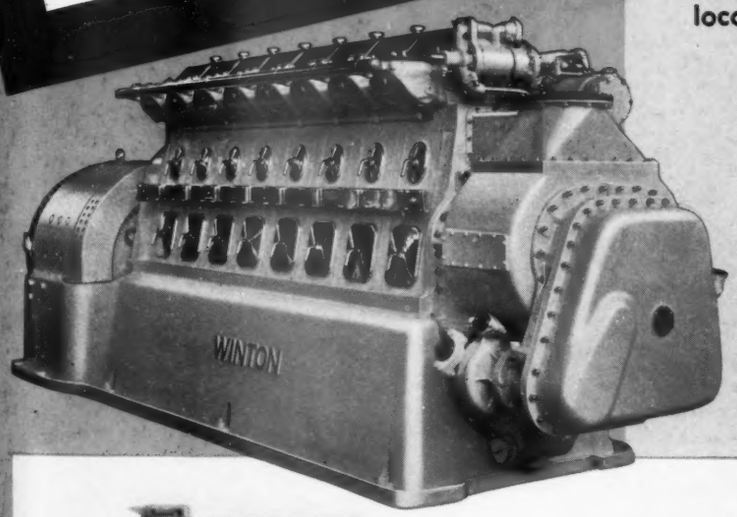

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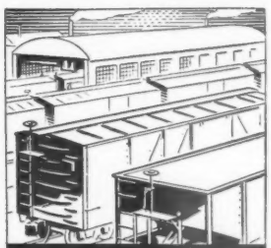

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RAILWAY AGE

What Does the Public Want from the Railroads?

Judging by the way in which customers are being attracted by the services of the Union Pacific and Burlington streamlined unit trains and the North Western's "400," speed with modern comfort is the chief demand the traveling public makes of the railways today. These qualities, combined with car and locomotive design calculated to catch the popular attention, the railroads have developed to the utmost of their ability during the past year—as is attested not only by the new trains already in service, but by the even greater number still under construction.

Lower Fares and C. and D. Service

The increase in travel which has followed reductions in rates—either through lower basic fares or by liberal excursion advantages—shows that this development also is one which meets a public demand. In freight service, the growing popularity of collection and delivery and overnight freight service between distant cities shows that speed and all-inclusive rates are among the things that shippers desire. Shippers also would like to have many other things at the hands of the railroads, among them lower transportation costs and better equipment, with consequent easing up of packaging requirements and a reduction in loss and damage claims.

The railroads would like to give the public the things it wants in much ampler measure than they are now doing—particularly those things which have demonstrated their ability to increase patronage. But the difficulty is that all these things cost money, or require credit. How raise the money or establish the credit to finance the expenditures which will improve railroad service? How far is it safe to go in reducing rates on a gamble that sufficient additional patronage will be attracted not to involve a financial loss? These questions, in the face of rising wage and material costs and demands by union labor which would greatly increase railway operating expenses, constitute the dilemma of railway managements today.

And the answer to these questions does not lie with the railway managements alone. It lies largely with the public itself. The number of streamlined trains the railroads can buy, the modern locomotives they can order to reduce their operating expenses and improve service, the new car equipment they can purchase to meet the needs of passengers and shippers, depends on the credit they can command. Railway credit at the present time is at low ebb because railway earnings are so low, and because of the snail-like progress which legislation designed to correct the chaotic competitive conditions in transportation is making in Congress. The individual or the community seeking an improvement in railway service can get what they want if they will support the legislation now before Congress to bring highway and waterway transportation under the regulation of the Interstate Commerce Commission; and, at the same time, urge the defeat of "make work" legislation designed enormously to increase railway operating expenses.

Legislation Necessary to Modernization

The passage of the regulatory measures—and the defeat of those designed to reduce train length and efficiency until all railroads are in the "jerk water" class—would have an instantaneously favorable effect, not only upon the railways' credit, but on the managements' willingness to spend. Collateral securities now on deposit with banks and the Reconstruction Finance Corporation would rise in value, giving the roads greater borrowing power. And the renewed confidence in the future which would be engendered in railway managements by a demonstration by Congress of its ability, finally, to deal honestly and realistically with transportation, would lead them to utilize their improved credit to provide the kind of betterments their customers show they desire.

Transportation is this country's most serious economic problem. Colonel Willard T. Chevalier, of the National Highway Users Conference, in a recent ad-

dress before the American Automobile Association estimated the annual expenditure for motor transportation in excess of 10 billions. Add to this the 3 billions being expended under present depressed business conditions for railroad transportation, with other hundreds of millions upon waterways and water transportation and we reach a total figure of colossal proportions, when it is compared with national income produced, which declined from 83 billions in 1929 to 39 billions in 1932. With competition in transportation admittedly wasteful and chaotic and with the American people plainly spending a much larger proportion of the national income for transportation than they can possibly afford, and still have enough left over to meet other wants—is it not about time that the transportation industry and the government began to take steps to end some of the waste?

The government shows commendable ingenuity and resourcefulness in tracking down and punishing racketeers, whose activities have cost the people millions. It shows equal zeal—if not quite the same wisdom—in ending the opportunities wealthy manipulators have found for stealing the people's savings. But the waste of billions in needless duplication of transportation facilities and in cut-throat competition among the various transportation agencies has so far left it cold.

No Depression Cure Which Omits Transport

How much longer will the depression have to endure, before the government and the people will realize that it cannot be ended until a beginning is made in clearing up the transportation mess? The social security proposals, the holding company bill and similar measures *may* soften the effects of the next depression, but they cannot give an iota of help to our present economic situation. By contrast, the passage of transportation regulatory measures now before Congress—and the defeat of the excess crew, short train and other bills calculated to increase wasteful expenditures for transportation—would probably do more than anything to pull us out of the economic slough in which we are mired; and such action would soften the effects of the next depression as well.

There exists no valid disagreement about the bills for equalization of transportation regulation. The preponderant majority among all the agencies of transportation agree on the principle, but some seem to prefer bills drawn to serve their own selfish interests. Such a position is, of course, untenable. To regulate each form of transportation in its own selfish interest is manifestly impossible. To concede the selfish interest of one agency is equivalent to a denial of justice to its competitors. In such a situation the public interest must dominate. It was to that end that the office of Federal Co-ordinator of Transportation was created and given as one of its duties the drafting of bills designed to preserve the public interest by curtailing the anti-social economic warfare now playing havoc with the transportation industry. No one can question either the ability, the thoroughness, or the social point of view which Co-ordinator Eastman brought to this task. What then is wrong with his bills which deal with transportation regulation? We suggest that the public weigh not only the opinions, but also the motives, of all those who are opposing this legislation.

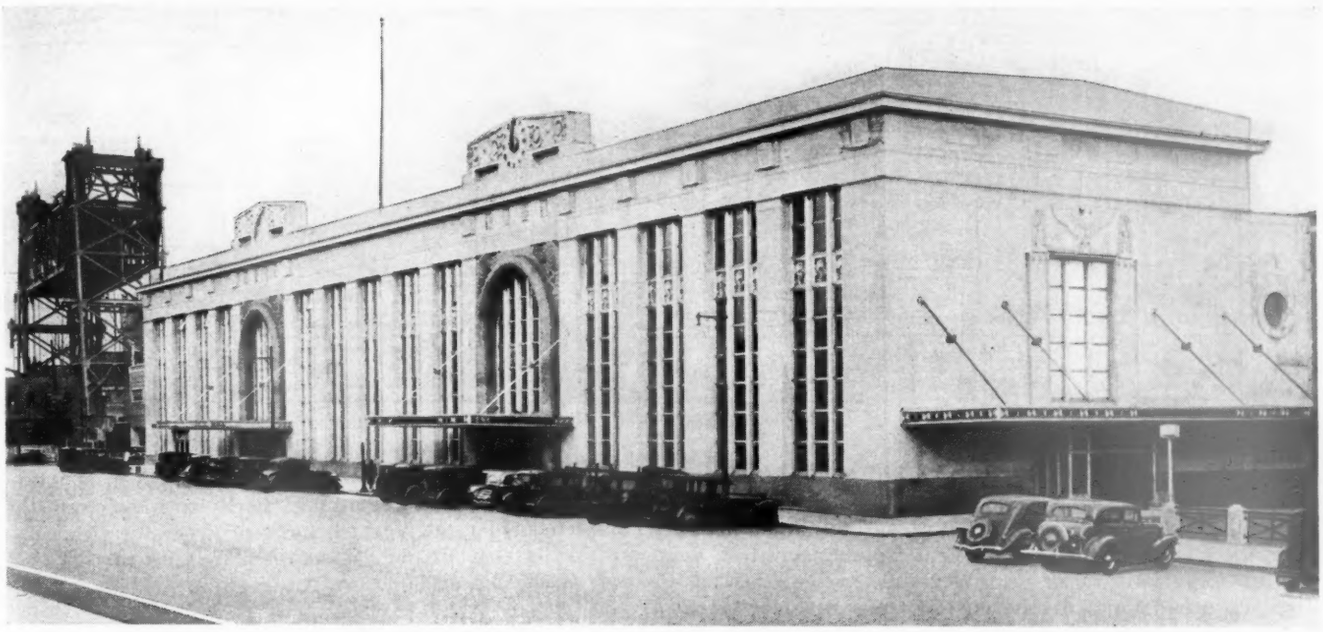
Poverty the Price of Refusal to Co-operate

The fundamental trouble with the transportation industry is that world-wide phenomenon—the general urge to get a larger share in the prevailing poverty, rather than the willingness to co-operate to end it. This urge prevents one nation from making anything in the way of sacrifice of its own immediate interest to promote international comity and greater reciprocal trade. The same urge lines up agriculture against industry. Leaders of each bemoan and denounce the concessions made to the other, while remaining perfectly complacent with the protection they themselves enjoy. Individual business men (not all of them fortunately!) form their opinions on proposed legislation, not from its probable effect upon the national economy, but from its immediate effect on the earnings of their own businesses. Labor union executives proceed resolutely toward killing the railroad goose which lays the handsomest golden egg ever laid for any body of wage-earners.

Civilization did not develop out of such blind refusal to make any concession to co-operation; and it cannot survive the death of the give and take principle. The take principle alone is ruling today, and in the transportation industry it will continue its destructive work until the public—at last grown weary of such foolish persistence in a policy which begets nothing but general poverty—resolves to put an end to it.

Congress Can Assure Immediate Upturn

When it does so, and when Congress, as a consequence, at last makes a beginning on the problem by equalizing competitive and labor conditions in transportation, the likelihood is that the greatest industrial renaissance on record will develop. Conditions are ripe—excepting only the wherewithal—for a revolution in railroad service in the direction which the public so clearly desires. Faster trains, lower fares, wider collection and delivery services, simplified tariffs, better equipment—all will come, and rapidly, with the revival in credit which would certainly follow even a beginning in eliminating competitive waste in transportation. And it is the elimination of waste—not the diversion of traffic to the railways which can be handled more economically by highway, or vice versa—which must be the goal. No agency of transportation legitimately and economically serving the public need fear anything from the elimination of waste which would follow reasonable equality of regulation. Indeed, if the elimination is thoroughgoing, the result should be the enrichment of everyone connected with transportation, including users as well as producers.



The Pennsylvania's Modern Station at Newark, N. J., Which Co-ordinates Railway, Rapid Transit, Trolley and Bus Services

Pennsylvania Opens New Passenger Station at Newark, N. J.

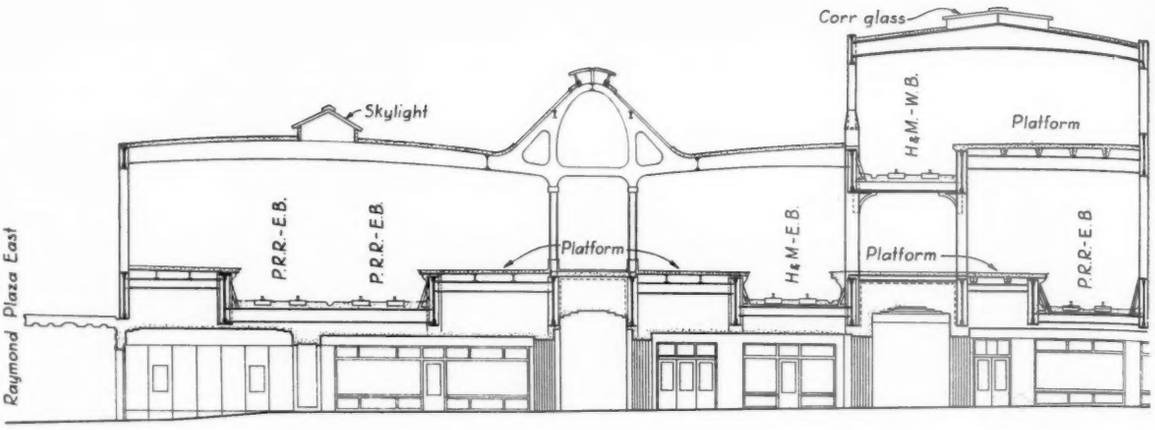
Completes first stage of extensive improvements at this point, which also involve many track and signal changes and a three-track vertical lift bridge*

CLOSELY following extensive passenger station and general improvements at Philadelphia, Baltimore, and other important points on its heavy-traffic line between New York and Washington, D. C., the Pennsylvania, on March 24, completed and placed in service the first stage of an extensive passenger station project at Newark, N. J., a city of 450,000 population at the western gateway to the metropolitan area of New York. This project, which was started in 1929, not only includes a modern passenger station, but also provides for close co-ordination with trolley, bus, taxicab and private vehicular traffic to and from a wide contiguous territory, and effective and convenient transfer of Pennsylvania traffic to and from lower Manhattan.

The Newark project includes a new passenger station, with eight tracks and six platforms; the construction of approximately 1400 ft. of steel and concrete viaduct carrying six to eight tracks; three vertical lift bridges over the Passaic river, one carrying three tracks, a second carrying two tracks, and the third a single track; the complete resignaling of the new station area,

Looking West Over the Station Improvements, Showing the First Stage Completed, on Right, and Old Tracks, to be Removed, on Left

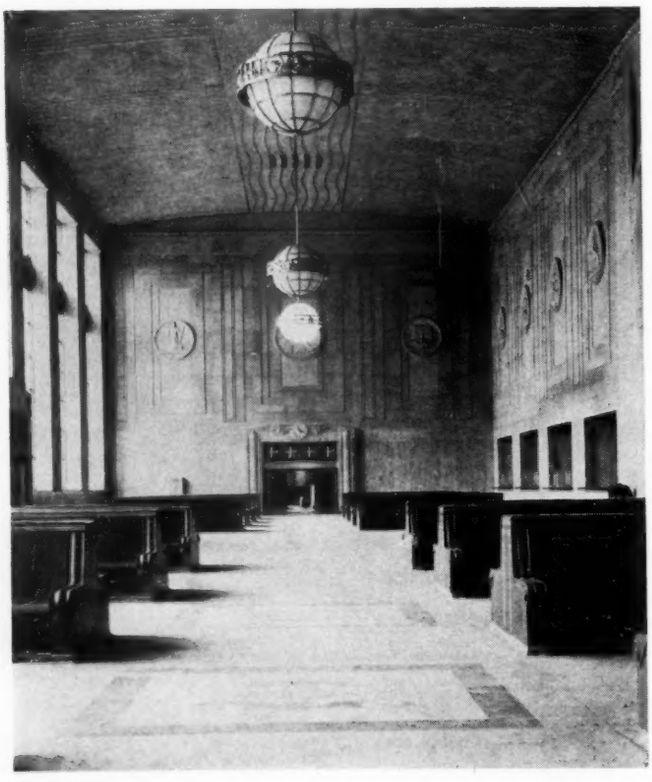
* A description of the lift bridge, which has a number of unusual features, will be published in an early issue.



Section Through the Station Headhouse and Main Concourse, Looking West—Work Shown to the Right of the Binding is Completed, While That Shown to the Left is Still to be Completed

involving a new interlocking tower with a 155-lever machine; and such other related changes and improvements as the construction of a large express building and the relocation and enlargement of local freight facilities. In conjunction with these improvements by the railroad, the city is widening or otherwise opening up street areas leading to and extending about the new station area, and is carrying its new trolley subway to a terminal directly beneath the station.

In the first stage of the work, which was confined in scope because of the location of the existing tracks and an old river bridge, the major facilities completed and put in service include the station headhouse with three elevated tracks and two platforms, and an adequate length of train concourse to serve the three tracks; the three-track lift span bridge, the new express facilities, and as much of the signaling and interlocking work as the present new track facilities require. All of these facilities, with the exception of the bridge, are described in this article. The bridge will be described in a subsequent article. The remaining work to round out the complete project at Newark must of necessity await disposition of the old facilities, which, because of their extent, presents a sizeable project in itself.



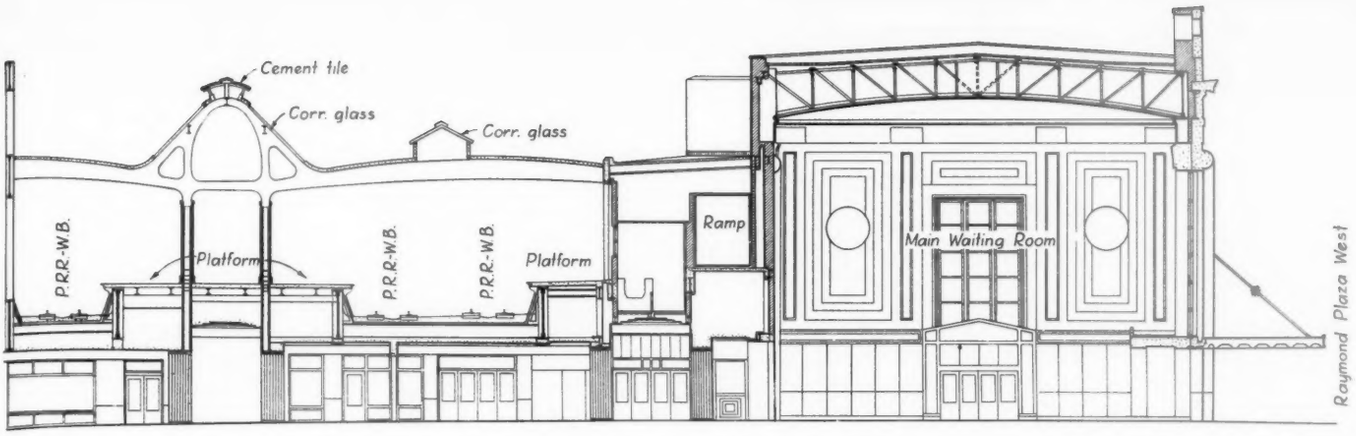
Looking East Through the Spacious and Attractive Waiting Room, Showing the General Style of Architecture and Interior Treatment Employed

Operating Conditions To Be Improved

The Pennsylvania passes through Newark in a general east and west direction, and in the old arrangement had four tracks, except directly through the station area, where there were only three tracks. All of these tracks were elevated on an embankment retained by heavy stone masonry walls, and were carried across streets on half-through girder bridges. The station itself, a two-story brick structure with two elevated platforms serving only the outside tracks, was located on an irregular plot of ground on the north side of the right-of-way, with frontage on Market street, one of the important streets of the city. Approximately 1300 ft. east of the station, the tracks crossed the Passaic river on a two-track swing bridge and then continued to a four-track layout at Manhattan Transfer, about a mile east of the river.

Manhattan Transfer is the point of divergence of the road's service to its main station in mid-town New York and to its station at Jersey City, N. J., and also the main point of interchange to and from the road's rapid transit connection direct to lower Manhattan via the Hudson & Manhattan Railroad. Ever since the Pennsylvania's entrance to mid-town New York, practically all passengers to and from down-town New York via the Hudson & Manhattan have changed trains at Manhattan Transfer, which was exclusively a transfer point in open meadow country, originating no traffic. Beyond this point, the rapid transit trains from lower New York continued to Park Place station in Newark, a rapid transit terminal located approximately six city blocks from the Pennsylvania's Market Street station.

Until the electrification of the Pennsylvania's service from New York to Philadelphia was completed in January, 1933, Manhattan Transfer served also as the point of change between steam and electric operation, which necessitated train stops at this point. With through electric operation, this condition no longer exists and gave rise to a plan to extend the rapid transit lines directly into the Market Street station at Newark, and there effect all transfer of passengers, thereby eliminating the necessity for the extra train stop at Manhattan Transfer. This plan was incorporated in the general Newark improvement project, so that when that project is finally completed, Manhattan Transfer can be eliminated, with increased efficiency in service and greater convenience to the traveling public. This phase



of the improvements at Newark, which will involve two rapid transit tracks at the new station, is still to be completed, along with a plan to extend the rapid transit tracks approximately 1½ miles west of the station on an elevated structure, parallel with and directly north of the existing Pennsylvania main tracks, to a new local station or terminal at South street.

Station Is Attractive and Well Located

In the improvements at Newark, the right-of-way, as narrow as 56 ft. for a considerable distance east of the old station, has been widened generally to the north through the city, and, through the new station area, has been widened to both the north and the south, to a maximum width of approximately 240 ft. As a result, with only the necessity for cutting off a section from the rear of the old station, adequate space was afforded for the construction of three of the new station tracks and passenger platforms, while maintaining in service most of the old station and its platforms, and the three existing tracks. It also permitted the construction of the new three-track lift span bridge immediately north of the old swing bridge, so that when the first stage of the improvements was put in service, the railroad had, except as regards the number of tracks directly at the station, greatly enlarged facilities over the old arrangement.

The new station building, with taxicab space at one end and bus space and a subway trolley terminal at the other, is located on the north side of the widened right-of-way, in the two blocks immediately east of the old station. It fronts directly on Raymond Plaza West, a thoroughfare 125 ft. in width, which connects with Market street at one end and with Raymond boulevard, a new wide through thoroughfare, at the other end. In this location, the new station is much more readily accessible to vehicular and pedestrian traffic than the old station.

The station, which is a steel and masonry structure faced with gray Indiana limestone above a pink granite base course, reflects the Classical style of architecture and is modern in both appearance and arrangement of facilities. It is 302 ft. long by 79 ft. deep, and rises to a height of 51 ft. above the surrounding street level. The front facade presents a rhythmical procession of square pilasters between a series of high window panels, interrupted only by two large archways of pink granite, which ornament wide entrances at about the third points in its length.

The frieze of the cornice surmounting the main facade is embellished only by a series of carved limestone panels, except directly over the entrance arches where, in each case, the otherwise plain skyline is broken by a projecting decorative motif inset with a large illuminated clock in one case and a zodiac in the other. A feature of the exterior is the consistent use of satin-finished aluminum for window frames and mullions, and as a weather-resisting ornamental covering of the broad marquees which afford protection at the entrances.

Beyond each end of the station building proper, the elevated track and platform structure, which is of structural steel with a concrete deck, is hidden from view above the deck level by a curtain wall enclosure faced with buff colored brick in attractive patterns above and below long horizontal window panels. These walls, which extend 330 ft. east of the station and 575 ft. west of it, are integral with graceful brick-faced arches over the portals to new half-through bridges over Market street and Raymond boulevard. As a decorative feature of these walls, limestone has been used in the coping and as trim about the windows; colorful terra cotta plaques have been inserted between adjacent window panels; and the whole is capped by a decorative aluminum cresting.

Looking East Over the Two Station Platforms Completed, Showing the Attractive Steel-Frame, Glass and Cement Tile-Covered Sheds to be Provided Generally

The street arches are ornamented and set out by granite pylons on each side, surmounted by large carved eagles.

Interior Is Well Laid Out

The two entrances to the station from Raymond Plaza West were provided for in keeping with one of the basic functions of the new station, which is evidenced so clearly throughout the interior arrangement—that of providing for the handling of both the railroad's patrons and the passengers of the rapid transit service to and from Jersey City and downtown New York, with the least possible interference between them. Thus, in general, the west half of the station is designed for use by the railroad's patrons, while the east half will be used largely by patrons of the rapid transit service, although the two halves of the station are in intimate contact with each other and all of the more important public facilities, including the waiting room, ticket windows, lavatories, etc., are common to both.

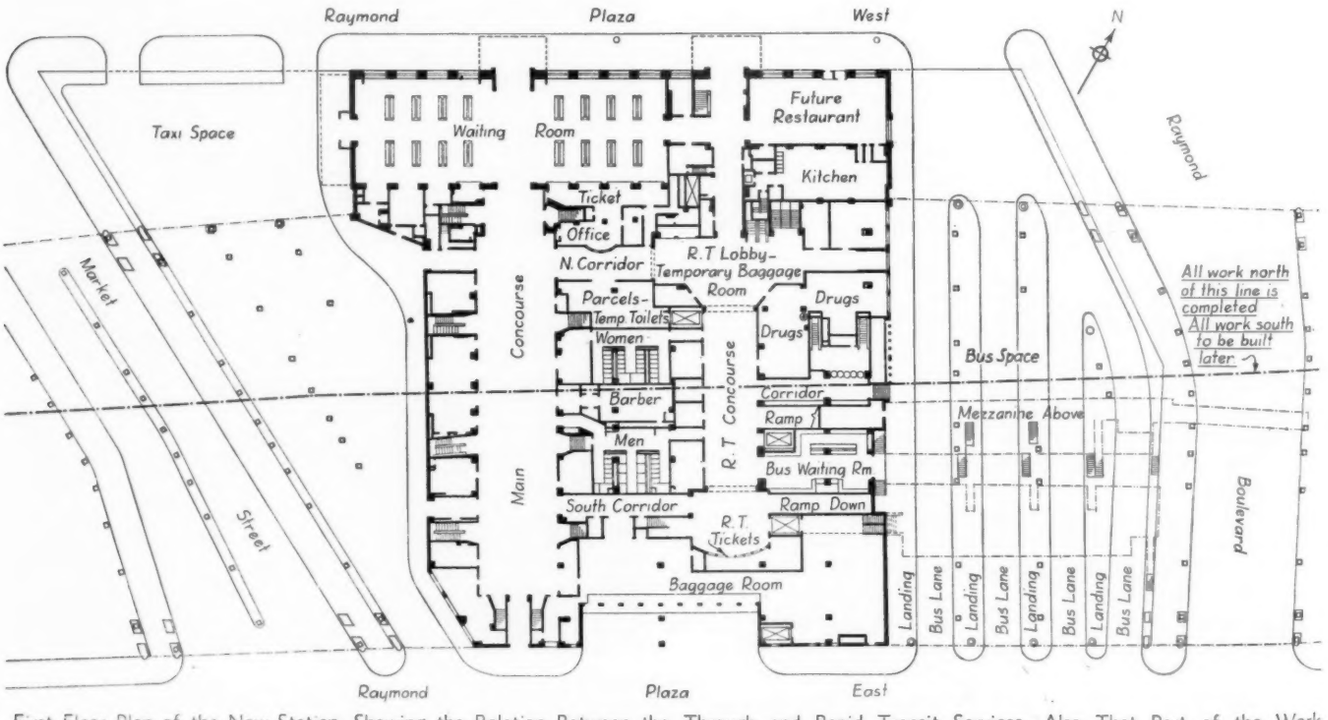
The main waiting room, 175 ft. long by 58 ft. deep, with a vaulted ceiling 46 ft. high, lies directly along the front of the station, centered about the more westerly main entrance. Directly across the waiting room on the axis of this entrance, a train concourse, 45 ft. wide, extends beneath the elevated tracks and gives access to and from the track platforms by means of stairways and escalators. At present, this concourse, known as the main concourse, serves only the two platforms which have been completed, but eventually, with the completion of the five additional tracks at the station, it will be continued beneath all of these tracks, a total distance of approximately 255 ft., to a street-level entrance and exit lobby on Raymond Plaza East, a new wide thoroughfare opened by the city on the east side of the railroad property.

The rapid transit portion of the station, when completed, will lie directly back of the easterly main entrance, and will consist essentially of a lobby, approximately 83 ft. by 39 ft., and a ground-floor-level train concourse, 30 ft. wide, which will extend beneath the tracks and afford stair and escalator access to and from the rapid transit platforms to be built later. Between this concourse and the main concourse, there will be two cross corridors, from 12 to 20 ft. wide, which will be extended east of the rapid transit concourse to a bus space and a city trolley subway terminal, and west of the main concourse to a large taxicab and private car loading and unloading space. The ticket office is located on the south side of the waiting room, east of the main concourse, and has sellers' windows both on the waiting room side and on its opposite side, which faces on the more northerly cross corridor, where it can be reached readily by both through and rapid transit passengers.

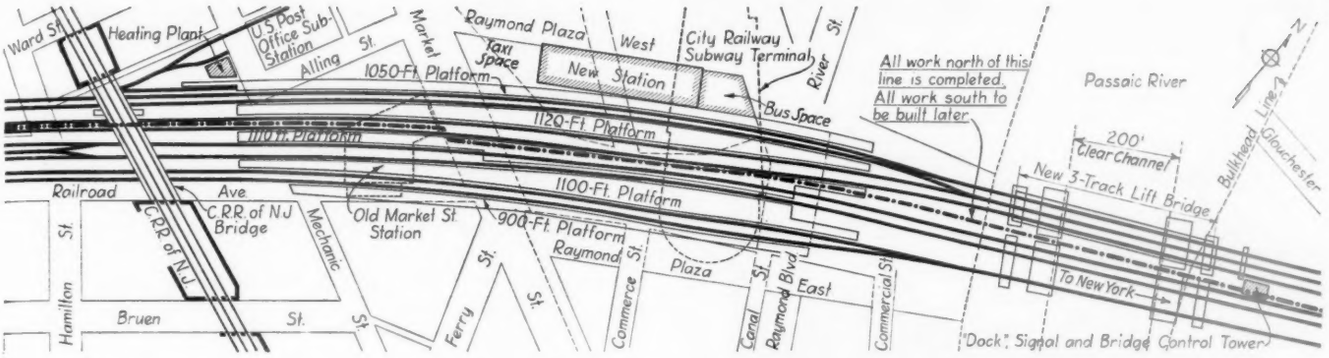
Thus, it is evident that while rapid transit and through passengers will have free access to the entire building, and can move freely to any of the facilities provided, the normal movements of the two classes of patrons will not conflict. This is particularly desirous because of the large rush-hour commuter traffic that will be handled by the rapid transit service, traffic which will move rapidly through the station to or from the pedestrian entrances or those leading to and from the bus and trolley facilities.

At the present time, of course, with no rapid transit service into the station, the rapid transit areas of the station are incomplete, and a large part of the unfinished area is being used by facilities which will later be located beneath the south half of the track and platform structure. Thus, for example, the rapid transit lobby and the corridors adjacent thereto are being used temporarily for baggage-handling facilities, which, eventually, will be located beneath the most southerly elevated tracks, facing directly on Raymond Plaza East. This final location of the baggage facilities will not only provide ready access for trucks, but will confine all trucking operations to one side of the station.

The dining room and kitchen service facilities, not completed at the present time, will be located in the northeast corner of the station just east of the rapid transit entrance, and the men's and women's lavatory facilities and a barber shop will be located between the extended concourses, with access from both. Temporarily, no



First Floor Plan of the New Station, Showing the Relation Between the Through and Rapid Transit Services—Also That Part of the Work Completed and That Still to Be Completed



General Station Layout at Newark As It Will Be When Completed—Work South of Heavy Dot and Dash Line Still to Be Undertaken

restaurant or barber shop facilities are provided, and the men's lavatory facilities are located directly off from the northerly cross corridor, opposite the rear of the ticket office, in space which will be used eventually as a parcel checking room.

The trolley terminal that is being built at the east end of the station, and is practically complete except for a track loop at the south end, which cannot be constructed until the old tracks of the Pennsylvania are removed, provides five tracks and five platforms, all in direct contact through stairs, escalators and sub-level passages directly with the station. The bus space, which is located directly above the trolley terminal, will provide four bus lanes and five landings, which can be reached directly from the station via mezzanine passages extending over the bus lanes.

Interior of Station Is Pleasing

The interior decoration and furnishings of the station are as attractive and practical as the exterior. In the large waiting room, the floor is of red terrazzo with inlaid patterns in black and yellow. Above a high wainscoting of rose yellow Travertine, quarried in Montana, the walls, except across the front face, are of soft buff-color acoustic material in panel form. In the front face of the room, the pilasters separating the high window panels are faced with Napoleon gray marble. The ceiling, which is vaulted and faced with acoustic material in a herringbone pattern, is painted a variegated blue with a series of wavy bands of gold leaf longitudinally through the center.

To relieve the otherwise plain character of the large wall expanses in the waiting room, artistic touches of color and design have been applied. For example, a series of 13 large plaster plaques depicting the history of transportation adorn the walls; satin-finished aluminum has been used widely for trim and is featured in the framing of the end entrances and in an ornate glazed vestibule inside the main entrance; and a large red panel in a marble framed arch surmounts the opening leading into the concourse. In addition, the settees, which are arranged in a series of eight rows crosswise of the room, and also along the front wall, are of walnut inlaid with aluminum trim and identification numbers, and the doors, which have wood cores, are finished with Formica of a deep red color and are provided with aluminum kick plates and a series of horizontal aluminum protection bands.

One of the most striking features of the room is the series of four main lighting fixtures suspended from the ceiling. These fixtures are spheres of opal glass, five feet in diameter, in white bronze frames, the most prominent part of which is a horizontal pierced band displaying the signs of the zodiac. These fixtures, which can be lowered to the floor for cleaning and lamp renewals, contain three groups of lamps each, permitting three different intensities of illumination.

Another feature of the room is a large sectional window over the west entrance, which has been inset with thin sheets of oil-treated Alabama marble to break the intensity of the afternoon sun and yet permit some diffused illumination. This material, which is translucent, presents a deep brilliant yellow in the sunlight, and shows in relief all of its attractive natural veining.

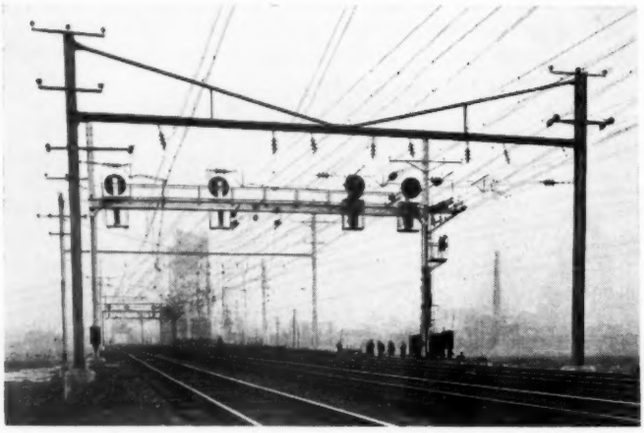
The waiting room side of the ticket office, which has four sellers spaces and two information spaces, presents a marble counter, surmounted by aluminum grills at the service openings and low plate glass panels between them. On the opposite side of the ticket office, facing the north corridor between the concourses, the ticket counter, with three sales spaces, is laid out in an arc, and is entirely enclosed by glass in a bold frame of satin-finished aluminum.

The main concourse and such of the cross corridors as are completed, have a ceiling height of 10 ft. and are finished with Napoleon gray marble on the side walls and an acoustic material on the ceilings. A special feature of the ceilings is their backing with a one-inch insulating blanket to deaden the noise of train movements above.

Lighting throughout the low ceiling areas is by means of recessed ceiling lamps with flat light-diffusing glass lenses set flush with the ceiling. The lighting current is 125-216-volt, 3-phase, 4-wire, 62½-cycle, supplied by motor generators of 400 kw. capacity, which, in turn, are fed through transformers from the company's 11,000-volt, 25-cycle electric traction current supply lines. Three independent sources of supply are provided for, and, in addition, emergency lights are located about the building at strategic points, connected into a separate wiring system which taps the power lines used for signal operation. The power required for the operation of motors within the station, such as those driving the ventilating fans, pumps, escalators, etc., is secured direct from the railroad's traction current supply, which is passed through step-down transformers located in a masonry-enclosed room in the basement of the building. Immediately adjacent to this room is located the switchboard which controls all of the power equipment.

Special features provided at the station include a master clock system with 13 clocks; a hold-up or burglar alarm system; a fire alarm system, directly connected with the city fire alarm system; and a pneumatic tube system, which makes personal messenger service unnecessary in conducting routine business between the ticket office and the baggage room.

The station is heated essentially by the direct method, through convection-type radiators with automatic temperature-regulating valves, which are housed within the



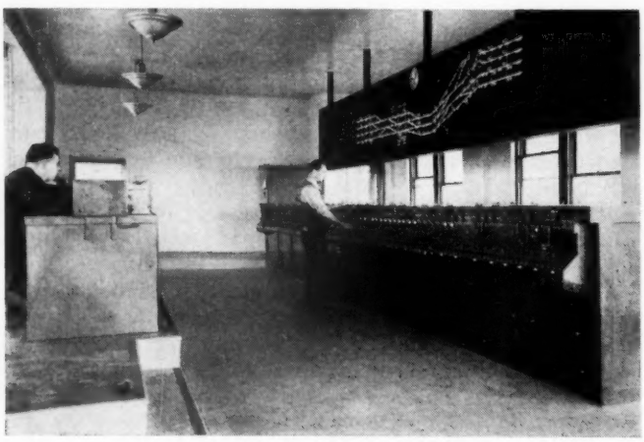
Position-Light Signals at the East End of the Station Improvements, Looking West Toward the New River Bridge and the Station—All Tracks are Electrified

back-to-back settees in the waiting room, and also in concealed recesses in the walls. This system is, however, supplemented by an extensive forced ventilation system which supplies a continuous flow of fresh filtered air throughout the building, which can be warmed during the cold months of the year. Steam for heating purposes is supplied by a new heating plant constructed immediately west of the site of the old station, while the fans of the ventilating system are located on the track side of the station at different floor levels. In the latter system, fresh air is taken from the third floor level on the east side of the building, and, after being filtered, washed, heated in cold weather, and humidified, is forced by fans to the various public and private areas of the station.

In the waiting room, the conditioned air is ejected through groups of slots in the center of the ceiling, and is exhausted by a separate fan system through openings provided beneath certain of the settees. This exhaust system also extends to many of the smaller areas of the station, and, eventually, will include the dining room and kitchen, the lavatories, and the taxicab and bus loading and unloading areas. Altogether, there will be a total of 10 ventilating and exhaust fans in the air-conditioning system.

Details of Track Layout

Only three tracks, immediately adjacent to the station, have been completed at present, but the ultimate plan calls for eight tracks, six of which will be used by Pennsylvania trains and two by rapid transit trains. Across the station layout from the station side, these eight tracks will be as follows: A westbound station track; two westbound main or running tracks; an eastbound running track; a westbound rapid transit track; an eastbound rapid transit track; another eastbound running track; and an eastbound station track. Certain of the running tracks will be signaled for two-way operation to facilitate train movements during peak traffic.



Within the New "Dock" Interlocking Tower, Showing the New 155-Lever Electro-Pneumatic Interlocking Machine, the Illuminated Model Board, and the Operator's Desk

All of the station tracks, with the exception of the westbound rapid transit track, will be located at approximately the same level, and car-floor-height platforms will be provided to serve all tracks. A special feature of the track and platform layout is the fact that the westbound rapid transit track will be located approximately 20 ft. above the level of the other tracks, and will extend longitudinally above a platform which will be continuous between one of the Pennsylvania eastbound mains and the eastbound rapid transit track handling trains to Jersey City and lower New York. With a similar platform on the opposite side of the eastbound rapid transit track, this will enable eastbound Pennsylvania passengers, destined to lower New York, to transfer from through trains on either of the main eastbound tracks, to eastbound rapid transit trains, by movement directly across a platform.

The high-level westbound rapid transit track will be served by a long car-floor-level platform on its north side, directly above a part of the platform beneath. This platform will be joined with the station proper by a wide enclosed passageway extending across the intervening tracks, with ramp connection to the westbound through platforms for the use of westbound rapid transit passengers from New York, transferring to westbound Pennsylvania trains. Westbound rapid transit passengers for Newark will use the high-level cross passage to the station, from which stairs and escalators will carry them to the ground floor level in the rapid transit portion of the station, in immediate connection with the main pedestrian exit on the Plaza, and exits to the trolley subway and bus space. Eastbound rapid transit passengers will use the ground floor rapid transit concourse directly to the escalators and stairs which will be provided to the eastbound rapid transit platform at the general track level. Thus, it will be seen that, when completed, the new station will provide for complete co-ordination of rapid transit and Pennsylvania services, with minimum conflict between patrons making separate use of these two services.

The three tracks in service at the present time, which provide trackage equivalent to that formerly at the station, will be used exclusively by Pennsylvania trains, the middle track serving for movements in either direction as the need may require. In conformity with the ultimate plan for all of the tracks throughout the station area, the tracks already constructed consist of 131-lb. rail resting on short treated ties set directly in the concrete deck of the steel viaduct structure. This construction, with its ready adaptability to cleaning, insures a tidy track structure at all times. Hose boxes have been provided at intervals of 100 ft. along the platforms to facilitate washing down the platform surfaces and the deck structure.

The three tracks completed are served by the new permanent-platform adjacent to the station building, and by one of the permanent wide island platforms. The former platform, at its extreme west end, will also eventually serve a Pullman car storage track, where originating westbound Pullman cars will be made up and be held. Both platforms, which are more than 1,000 ft. long, are typical of the remaining platforms to be built

in the later stages of the work. They are of reinforced concrete construction supported by the viaduct steelwork, and are covered by attractive glass and cement tile sheds supported on structural steelwork of pleasing design and painted light green.

Both platforms have waiting rooms near or in direct connection with the approaches from the concourse; one on the station-side platform being constructed of brick, and two on the island platform, constructed of cast and wrought aluminum with glazed doors and sidewall sash. The different waiting rooms, all of which are heated and furnished with settees, vary in size, but the largest, which is on the intermediate platform, is 153 ft. long by 13 ft. wide.

Many Signal Changes

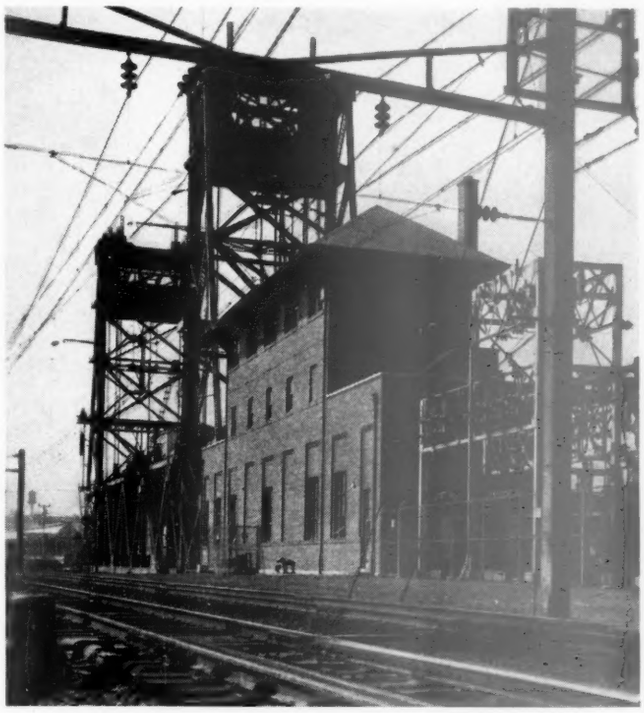
The signal and interlocking changes made in connection with the improvements at Newark extend over approximately a mile, and include a new operating tower, a new 155-lever interlocking machine, and a large number of signals and switch machines. At present, of course, the signal and interlocking facilities are developed only to the extent of taking care of the new tracks put in service.

The new interlocking tower, which is called "Dock" tower, is located immediately east of the Passaic river, approximately 1500 ft. east of the new passenger station. This tower, which also houses the new bridge control and power generating equipment, to be described in a subsequent issue, is a three-story brick structure with a basement, the first floor and basement being 123 ft. 8 in. long by 25 ft. wide, and the second and third floors being 71 ft. 4 in. long by 25 ft. wide. The basement houses principally electrical cubicles, busses, circuit breakers and other such equipment, and also provides space for air compressors and for small work shops for the track and signal forces. The ground-level floor is the power generating floor, essentially for bridge operation and station lighting; the second floor is occupied essentially by signal relays and associated equipment, while the third floor houses the interlocking machine and bridge control desk.

The interlocking machine is of the electro-pneumatic type, and, at present, has 36 working levers. Of these 17 govern 37 signals; 13 govern 21 switches; 3 govern smash boards; 1 is a check lever; 1 is a traffic lever; and 1 is called a bridge master lever. There are at present 99 spare levers on the frame and 20 spare spaces. A continuous, four-indication cab-signal system prevails throughout the territory, and all wayside signals are of the position-light type. In addition, approach locking and S.S. protection are provided. All switch machines are of the A-5 type, with C.P. valves; the air for operation being supplied by two 225 cu. ft. compressors, with automatic electric drive, located in the basement of the tower.

Special features of the signal installation include a model board, which incorporates not only the usual track and signal indications, but also indications of the electric trolley sectionalizing set-ups; and the fact that all wiring of the interlocking machine has fireproof insulation. Another interesting feature is the interlocked arrangement between the signal equipment and the bridge operating mechanism. In this, before the signals can be cleared, the movable span must be properly seated and locked, and all power to the bridge cut off. Similarly, before the span can be raised, the signals must be set at stop, the bridge smash boards put down, the span and rail locks withdrawn, and the master lever of the interlocking machine put at normal. Furthermore, all track circuits must be unoccupied between the smash boards each way from the bridge. All of these conditions are indicated electrically, so that the signal operator has directly before him visual indication of the situation at all times.

The new interlocking replaces an old interlocking, called CK interlocking, which, with a 35-lever electro-pneumatic machine, is located immediately west of the Passaic river, but which will be removed. In the old arrangement, all power and signal lines crossing the river were carried in either submarine cables or cables directly on the old draw bridge, with circuit breakers at the ends of the swing span. In the new arrangement, all circuits, including signal, traction and station lighting, are carried under the river in a tunnel of 6 ft. inside diameter and 600 ft. long, located approximately 50 ft. north of the new river bridge. This tunnel, which is essentially a concrete pipe with a 12-in. wall, poured in place, was constructed under air pressure, employing steel liner plates for a shield. It has a cable chamber



New "Dock" Interlocking and Bridge Control Tower, Showing the Power Transformer Station in the Foreground, and the New River Bridge in the Background

on each side, one for high tension lines and the other for low tension lines, and between them there is a 2½-ft. passageway. At the ends, the tunnel is connected to the surface by concrete shafts, 10 ft. square and approximately 50 ft. deep, with splicing chambers directly above. Forced ventilation is provided to clear the tunnel of dead air when it is necessary for men to enter.

Other Improvements

In connection with the major improvements at Newark, numerous auxiliary improvements were necessary or found advisable, the more important of these including the construction of the new steam plant for heating the station; new express handling facilities to replace facilities which had to be removed to permit the new passenger station construction; and the provision of additional local freight handling facilities because of the necessity for removing certain freight handling facilities in the vicinity of the old station.

The new heating plant, which is located approximately

600 ft. west of the station on the north side of the new station tracks, is a steel and brick structure approximately 50 ft. square by 66 ft. high, and has a radial brick chimney 175 ft. high. It is equipped with two stoker-fired water-tube boilers of 300 hp. capacity, which deliver steam to the station at high pressure in two six-inch seamless steel pipe lines. Condensation from the heating system is pumped back to the heating plant in a four-inch wrought iron return line. Both the supply and return lines are carried to the station in a pipe tunnel beneath the one island platform which has been constructed.

Coal is delivered to the plant over a ground-level track hopper on the north side, and from this is conveyed to the stoker hoppers by means of a ½-yd. clamshell bucket, which is hung from an overhead gantry but which is operated from the firing floor level. Cinders are conveyed to a large storage bin above the roof by means of a steam jet vacuum system, and from the storage bin are drawn off periodically over a chute to a car spotted on the coal delivery track.

The express handling facilities of the Railway Express Agency, formerly located on the site of the new passenger station, have been moved to a point about 1½ miles west of the station, on the north side of the main tracks, directly at the head of Broad street. The new facilities consist essentially of a one-story building 587 ft. long by 66 ft. wide, which includes a brick-enclosed office section at the east end, 144 ft. long, and a shed section at the west end, 443 ft. long. The shed section, which has a steel frame, is equipped on both sides with rolling steel doors, and above the doors it is enclosed with corrugated asbestos-protected metal siding and roofing.

The north side of the shed is served by a wide driveway, which extends beneath the shed roof a depth of 26 ft., affording back-up space under shelter for the longest trucks. The platform within the shed, which is at tailboard height, is approximately 35 ft. wide. On the south side, this is extended out about 5 ft., under cover of the roof, to serve two express car tracks on this side. The new facilities provide space in the shed area for a battery charging generator room and a truck washing stand.

The additional local freight facilities are located directly south of the express building, on the south side of the main tracks, and form an extension of existing facilities at this point. The expansion provided here consisted mainly of extending 15 tracks, arranged for the most part in groups of two, approximately 500 ft. to the east, and providing concrete driveways between the different extended groups as extensions to existing stone block driveways. In addition, however, a new small yard office and an auto and stock unloading platform were provided. Future plans call for the further lengthening of the tracks and platforms a distance of 250 ft., when requirements demand.

The extensive improvements at Newark have been carried out under the direction of T. J. Skillman, chief engineer of the Pennsylvania, A. C. Watson, chief engineer of the New York zone, and L. P. Struble, engineer—Newark Improvements. The improvements, except for the station building, the superstructure of the river bridge, and the signaling and trackwork, were made under contract by J. Rich Steers, Inc., New York. The station building and platform enclosures were built by George A. Fuller Company, New York. The signal work has been installed under the direction of J. S. Gensheimer, engineer of telegraph and signals, New York zone; the electrical work in connection with the station was carried out under the direction of J. V. B. Duer, electrical engineer, Pennsylvania system; and the trackwork was done under the direction of R. R. Nace, chief engineer maintenance of way, New York zone. The architects for the station were McKim, Mead & White, New York.

Claim Payments Increase

FREIGHT loss and damage paid by Class I carriers during 1934 showed an increase of $1,548,591, or 10 per cent over 1933, the totals for the two years being $17,034,031 and $15,485,440, respectively. Carload loss and damage amounted to $13,304,149, in 1934 and $12,448,808 in 1933, an increase of 6.9 per cent. L.c.l. loss and damage amounted to $3,729,882 in 1934 and $3,036,632 in 1933, an increase of 22.8 per cent.

Of the 16 causes for loss and damage, only 5 showed decreases in 1934, these being delay, 1.6 per cent; freezing or heater failure, 11.3 per cent; robbery other than entire package, 1.9 per cent; improper refrigeration or ventilation, 1.5 per cent; and fire or marine loss or damage, 24.6 per cent. Of the $1,548,591 increase, a total of $1,428,813 was caused by increases of 13.2 per cent in unlocated damage, 38.3 per cent in concealed damage, 16 per cent in defective equipment, and 34.2 per cent in loss of entire package. The claims paid, according to causes, are as follows:

	1934	1933	Increase	Per cent
Unlocated damage	$6,127,267	$5,414,759	$712,508	13.2
Concealed damage	1,567,196	1,133,493	433,703	38.3
Loss entire package	582,401	434,057	148,344	34.2
Defective equipment	974,466	840,209	134,257	16.0
Wreck	725,315	644,798	80,517	12.5
Robbery entire package	562,155	516,034	46,121	8.9
Rough handling	3,433,041	3,389,962	43,079	1.3
Other unlocated loss	674,230	636,922	37,308	5.9
Improper handling, loading, etc.	133,120	117,524	15,596	13.3
Concealed loss	62,215	48,101	14,114	29.3
Error of employee	249,290	244,121	5,169	2.1
Freezing or heater failure	554,122	624,801	*70,679	11.3
Fire or marine loss or damage	90,020	119,351	*29,331	24.6
Delay	606,623	616,245	*9,622	1.6
Robbery other than entire package	471,679	480,726	*9,047	1.9
Improper refrigeration or ventilation	220,891	224,337	*3,446	1.5
Carload	$13,304,149	$12,448,808	$855,341	6.9
Less Carload	3,729,882	3,036,632	693,250	22.8
Total	$17,034,031	$15,485,440	$1,548,591	10.0

* Decrease.

Probably the most interesting feature of the loss and damage statistics is the decreases of 17.8 per cent in payments on fresh fruits other than citrus, 2.6 per cent on fresh citrus fruits, 9.8 per cent on melons, 27.3 per cent on fresh and cured meats, packing house products and dressed poultry, 39.8 per cent on cotton, 4.5 per cent on butter, butter substitutes and cheese, 6.5 per cent on eggs in shell, and 8.2 per cent on tobacco and manufactured products. Twelve commodities out of the 38 in the claim account are responsible for $1,174,802 of the $1,548,591 increase in claim payments. These are new furniture, $202,831, a 31.4 per cent increase over last year; automobiles, automobile trucks, tractors, tires, parts and accessories, $171,724, a 55.1 per cent increase; iron, steel and other metal articles, $123,356, a 77.1 per cent increase; stoves, furnaces, radiators and parts, $108,953, a 38.5 per cent increase; sewer pipe and drain tile, $93,940, a 68.8 per cent increase; canned food products, $83,240, a 38.3 per cent increase; sugar, $82,622, a 52.1 per cent increase; live stock, $79,280, a 9 per cent increase; machinery, $66,375, a 23.3 per cent increase; petroleum oils, $58,904, a 51.3 per cent increase; flour and other mill products, $52,877, a 13.5 per cent increase; and fresh vegetables, $50,700, a 1.9 per cent increase.

Fan Circulation Improves Effectiveness of Refrigerator Cars

Wind-driven device increases uniformity of interior temperatures in both cooling and heater service

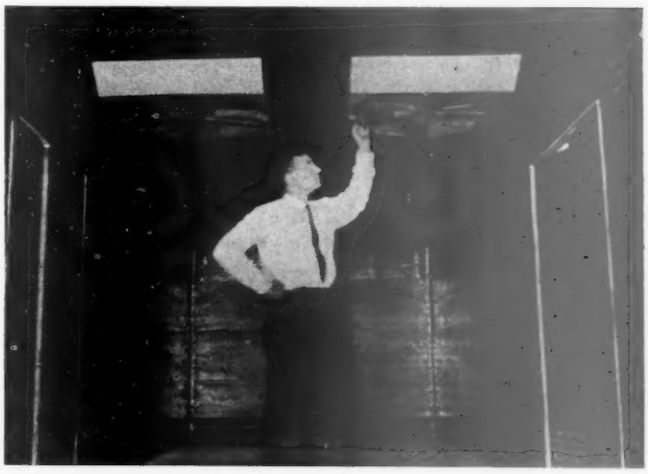
By E. A. Gorman, Jr.

Scientific Aid, Bureau of Plant Industry, United States Department of Agriculture

SINCE the development, testing, and general adoption (about 1920) of the floor rack, depressed ice pan, basket bunker and insulated bulkhead as standard equipment in refrigerator cars there have been no radical changes in their design to increase their efficiency so far as air circulation is concerned.

The thermal efficiency of refrigerator cars can be improved by increasing the thickness of the insulation but there is a practical limit to the amount of insulation which can be added. Furthermore, when this limit has been reached the problem of proper air circulation is still to be dealt with if the ice bunkers remain in the same location in the car.

The idea of relocating the ice bunkers in the top of the car has been considered and tested but because of possible damage to the lading by the dripping of condensed water from overhead bunkers this radical change has not been adopted. Thus, changing the location of the ice bunkers would also mean limiting the use of the car to ventilation and refrigeration service and would prevent it from being used for heater service, unless heaters were placed in the loading space or installed on the outside, underneath the car. Both of these methods of applying heat have been tried in regular service but have not proved efficient or practical. These are



Fans with Reversible Blades Operating in Ceiling Air Ducts Inside the Refrigerator Car

therefore strong reasons for keeping the ice bunkers in their present location in the car body.

Under present conditions some device for increasing air circulation in refrigerator cars is probably the best way to increase their efficiency, whether they are used for refrigeration or for heater service. The development of mechanical refrigeration in an inexpensive and practical form would eliminate some of the more important problems of transit refrigeration, but this has not yet been accomplished.

Wind-Actuated Rotor Mounted on the Roof of a Refrigerator Car to Drive the Fan Inside

Sources of Power for Air Circulation

Power for mechanical circulation of air in the car in transit can be derived from two sources: (1) the rotation of the axles of the car wheels, and (2) from wind outside the car or air pressure due to the motion of the car. Of the two, the latter seems the more desirable because of the simplicity and the small number of moving parts necessary in an apparatus designed to make use of it. The power from this source is limited however, because of practical restrictions on the maximum height of the car structure. A device which depends on the rotation of the axles of the car wheels for power will be inactive when the car is not in motion. In order to drive these devices when the car is standing still there must be some means of storing power. This means bulky and expensive equipment, chiefly storage batteries. Of course wind-driven fans are also inactive if the train is not in motion or no wind is blowing, or if the train is moving at the same rate as a tail wind, but such a combination of conditions is rarely met.

While there are records of tests on means of inducing

air circulation mechanically prior to 1913 none of these gave promising results. Wind-activated fans in a refrigerator car were first used by the United States Department of Agriculture in connection with a commercial shipment in a test with peaches out of Georgia in July, 1920. The device used at that time had been developed by a shipper in the peach district but in the form in which it was tested it lacked sufficient power and capacity to have any marked effect on the temperature of the load or on ice meltage. No further work was done on the problem at that time.

In September, 1927, a patent (No. 1,643,471) was issued to C. A. Richardson on a wind-activated device for increasing air movement in refrigerator cars which was theoretically sound and gave promise of being usable under practical conditions. Experimental work has been conducted privately with this device.

In November, 1933, patent No. 1,935,590 was issued to the writer on a wind-activated device for increasing the circulation of air in refrigerator cars. This has been dedicated to the free use of the public and may be used by anyone without payment of royalty.

The Wind-Rotor Device

The device was developed in experimental work with refrigerator cars during severely cold weather when it is necessary to apply heat to protect the load against freezing. It consists essentially of two specially designed rotors 10 in. high by 16 in. in diameter which are placed on the car roof, one on each side of the running board. These rotors are attached to a shaft extending through a tube in the roof to the inside of the car body with a four-blade propeller fan 29 in. in diameter attached thereto. The entire moving assembly revolves on an end-thrust roller bearing in a housing situated on the roof and attached to the stationary tube extending into the car. A radial thrust bearing is attached in a housing to the bottom or inside end of the stationary tube.

Each of the fans revolves in a port 30 in. in diameter opening into the loading space at the doorway from air ducts 30 in. wide and 4 in. deep made of light-weight galvanized iron and installed at the ceiling on a line half way between each side wall and the center line of the car. The ducts extend the length of the loading space and open into each bunker at the top, above the regular top bulkhead opening.

When the height of the loading space permits, the ducts can be applied below the regular ceiling and covered from the underside with a false ceiling nailed on stringers which are fastened with lag screws to the regular ceiling. The standard size top bulkhead opening is maintained by lowering the solid part of the bulkhead as much as may be necessary.

In rebuilding standard refrigerator cars to make use of the duct assembly, the ducts may be placed permanently above the regular ceiling by running them through the carlines or roof cross-members. This is important when the height of the loading space would be undesirably reduced by installing the ducts below the regular ceiling. This however would involve reinforcing the roof carlines to compensate for the weakening caused by running the ducts through them. The roof insulation could be applied over the ceiling as usual, covering the ducts at the same time. This would maintain the thermal efficiency of the car and when the apparatus is not in operation the natural circulation of air by convection would proceed as usual because the car would still have the standard top and bottom bulkhead openings.

The difference in temperature between the top and bottom layers of a load is usually greater under heater service than under refrigeration. The heat applied to protect the lading against freezing during the winter shipments is usually adequate for this purpose but an undesirably high temperature is often created in the topmost parts of the load. This may unduly accelerate the rate of ripening of fruit in transit and is responsible for substantial losses due to deterioration in quality of the produce. In many cases during very cold weather despite such high temperatures prevailing at the top of the load the bottom portions may at the same time be subjected to freezing temperatures due to lack of air circulation. This condition can be corrected by driving the warm air accumulated at the ceiling of the car, down to the floor sections by means of the propeller fans described in this article. In all of the tests made the fans have proved very successful in creating a more uniform temperature in the lading thus reducing the damage from too rapid ripening in the top layers and the danger of freezing in the bottom of the load.

Tests in Heater Service

The preliminary tests of the fan and rotor apparatus to determine the size of rotor and fan best suited to effect an increased air movement in a refrigerator car were carried on in the Department of Agriculture Cold Storage Laboratory at Arlington Farm, Va., and later in empty refrigerator cars at the Potomac Yard Shops of the Fruit Growers Express Company at Alexandria, Va. Further tests were then conducted on commercial shipments.

Test trips in which the fans were placed in actual service from the Pacific northwest have been conducted during each of the past two winters. Their value in protecting the bottom of the lading against freezing and the top against undesirably high temperatures under heater service has been clearly demonstrated. Data from one of the test trips during cold weather, shown in the table, are representative of results obtained.

Effect of Forced Air Circulation on Temperature Distribution within a Refrigerator Car in Heater Service

Outside temp., deg. F.		Car without fans	Car with fans
0	Average temperature top fruit previous to lighting heaters, deg. F.	35.2	34.0
0	Average temperature bottom fruit previous to lighting heaters, deg. F.	30.8	32.0
0	Difference between top and bottom fruit temperatures, deg. F.	4.4	2.0
−34	Average temperature top fruit—two charcoal heaters burning, deg. F.	51.5	45.5
−34	Average temperature bottom fruit—two charcoal heaters burning, deg. F.	34.2	37.5
−34	Difference between top and bottom fruit temperatures, deg. F.	17.3	8.0

The beneficial results obtained under heater service indicated that the fans would be useful with shipments moving under refrigeration. Consequently in July, 1934, a test was made with the fan device and duct installation in a car of peaches shipped from Georgia to New York, N. Y., comparing it with a similar load without the fan installation.

Tests Under Refrigeration

In the refrigeration test the arrangement of the fans was changed. Instead of drawing air from the bunkers and discharging it between the doors as in heater service, the fan blades were reversed so as to pull into the ducts the warm air accumulated at the ceiling and then force this air into the ice bunkers where of course it was cooled and flowed back to the lading from the bottom

bunker opening. The top bulkhead openings were not covered, so as to permit the natural circulation of air to take place when the fans were not in operation.

The cars tested were of standard design with wire basket bunkers of 9,600 lb. ice capacity and moved under standard refrigeration with three per cent salt at the initial icing and all reicings. Some of the data recorded during this test are shown in a table.

While it was proved that the use of this device gave better results than ordinary refrigeration during hauls as short as the one from Georgia to New York, (approximately 55 hours), it is probable that the improvement in refrigeration would be much more noticeable if it were used with transcontinental shipments. There is also no doubt that if used with precooled shipments, the desirable temperatures established by the process of precooling could be more nearly maintained than is possible by use of present standard equipment and methods.

Effects of Forced Air Circulation on Temperature Distribution in Refrigeration Service

Outside temp., deg. F.		Car without fans	Car with fans
93	Average fruit temperature at time of loading, deg F.	90.6	94.2*
100	Average temperature top layer fruit 24 hr. after loading, deg. F.	55.5	48.7
72	Average temperature top layer fruit 54 hr. after loading, deg. F.	46.1	40.6
88	Average temperature top layer fruit 72 hr. after loading, deg. F.	43.3	40.5
	(After holding at destination)		
	Average reduction in temperature of top layer during trip, deg. F.	45.3	53.7

* Fruit subject to direct sunshine before loading.

If the fans and ducts were installed in the car as regular equipment it is probable that they could be adapted to use in precooling a warm lading as it comes from the field and thus give to the railroads some of the car precooling business which is growing by leaps and bounds, but is now conducted almost entirely by other interests. This could be accomplished by using a portable electric motor to revolve the fans inside the car, temporarily attaching the motors to the fan shaft on the outside of the car roof. For this purpose the fan blades should be mounted as for use in heater service. Upon completion of precooling they could reverse and would then be ready for use in transit. The top bulkhead opening should be covered with a paper mask during precooling and the action of the fans would draw cold air out of the bunkers through the ducts and exhaust it over the lading at the doorway. Upon completion of the process the motors could be detached and replaced with the wind-activated rotors for use en route. No such tests have actually been made in precooling, but the performance of the apparatus under low-powered wind operation warrants a belief that it could be so employed.

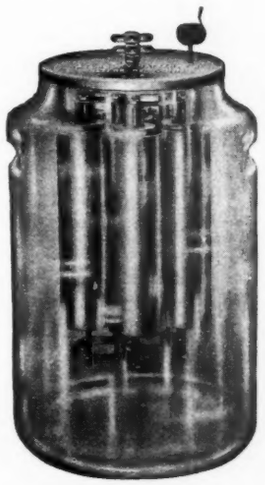
The device described herein has been tried under the most severe winter weather conditions that could be expected. The test runs over the northern railroad lines from the Pacific northwest have subjected the apparatus to heavy rains, snow, sleet and outside temperatures below zero for several days at a time, with a minimum temperature of -37 deg. F. and even lower at times. The low starting speed (approximately 5 m.p.h.) and the ease of motion were at no time impaired by these conditions.

To date there has been no commercial manufacture of the device and all of the apparatus tested was made by and is the property of the United States Department of Agriculture. The experimental work and development of this device were done as a project of the Fruit and Vegetable Handling, Transportation and Storage Investigations, Bureau of Plant Industry, under the direction of D. F. Fisher.

High-Amperage Primary Battery Cell

THE Waterbury Battery Company has placed on the market a new high-amperage type of primary-battery element which will deliver current at an extraordinary high rate over long periods of time. The elements are manufactured in both the 500-a.h. and the 1,000-a.h. capacity.

This element has been designed particularly for service where the discharge rate required is higher than is feasible with the older type of battery. It is particularly useful in operating highway crossing signals where several signals are being operated from a single battery source. In this case a cell is needed which will maintain its voltage with a high rate of discharge. The new Waterbury high-amperage type of cell will give practically the same curve on an 8-amp. discharge as the regular batteries give on a 3-amp. continuous discharge. For intermittent work even higher discharge rates are practical, according to the manufacturer.



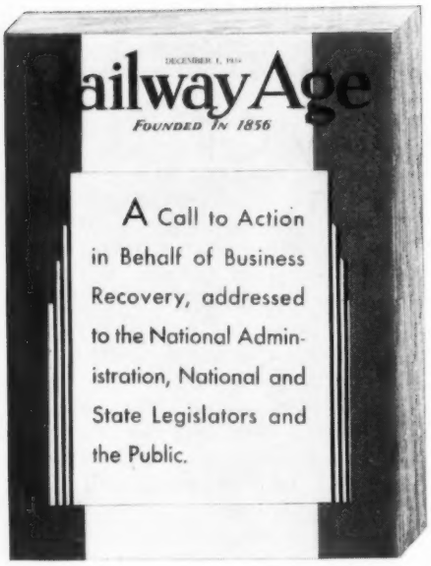
The 1,000-A.H. High-Amperage Cell

High Amperage Primary Battery Element

The indication of exhaustion is through the window bars, a patented feature such as has been used in the Waterbury Telecells for some time. With this indication the maintainer is in position to determine at a glance the condition of the cells at any time during their life.

THE GERMAN RAILROADS will soon place a number of articulated electric trains in service on electrified routes in southern Germany, Silesia and central Germany, orders having been placed for 28 units, each consisting of 2 or 3 cars equipped with 4 motors of a total of 1,200 hp. Among the features of these new trains is high acceleration. Their maximum speed of 74.6 miles an hour can be reached in 80 sec. The exteriors of the cars are similar to that of the "Flying Hamburger." They consist of two four-axle cars with short couplings, with the usual passage between cars.

The Story of the December 1 Issue


ailway Age
FOUNDED IN 1856
A Call to Action in Behalf of Business Recovery, addressed to the National Administration, National and State Legislators and the Public.

Which focused nation-wide attention upon the dependence of national recovery on the revival of the railway and durable goods industries

THE December 1 issue of the *Railway Age* has attracted nation-wide attention as the most extraordinary and important edition of any paper that ever was devoted solely to one vital phase of a single great economic problem. That problem, to which the entire editorial section and practically all of its 265 pages of advertising by railways and by manufacturers in the railway equipment and supply industry were devoted, is that of reviving business and employment in the durable goods industries and as a vital means to this end of reviving buying by the railways, the largest single customer of these industries.

Realizing that the recovery of the durable goods industries is the most pressing problem before the country today and that it is linked inseparably to the railway problem, the *Railway Age* took the leadership, in concert with the railroads and manufacturers, through this issue to promote prompt and vigorous action to stimulate the durable goods industries through increased railway earnings and purchasing power. This action to present the facts to the country was well planned, for at no time have government and legislative bodies been more open to constructive suggestions for legislative and administrative action favorable to the railroads.

The Editorial Program

The ediorial contents of the issue set forth the theme that national recovery cannot come without a revival in the durable goods industry; that a revival of the durable goods industry cannot occur unless railway purchases are restored to normal; and that railway purchases cannot recover unless and until railway net earnings recover. The steps necessary to revive railway net earnings were set forth not only as prerequisites to national economic recovery but as the only alternative to a greater economic disaster than we have yet experienced —namely, government ownership of the railways. To carry out this theme, the issue, in 21 articles and editorials, analyzed the grave problem of the durable goods industries and the relation of railway purchases to that problem, discussed net operating income—the factor which controls railway buying—and how that factor can be activated; outlined what the railroads can be expected to buy; showed the relation of net earnings to railway employment and labor standards; and proved the desirability and advantages of large government expenditures for the protection or elimination of grade crossings of railways and highways.

Widely and Effectively Circulated

Fully as important as the preparation of the right sort of editorial material and advertising copy, was the work of arranging for proper circulation of the issue, since upon this circulation depended the effect of the issue's appeal. It was essential that the issue reach every senator, every congressman, every state legislator, the principal federal and state officers, the members of interested regulatory commissions and also daily newspapers, business papers, insurance companies, financial institutions, educational institutions, chambers of commerce, farm papers, and others.

This issue was sent, of course, to all regular subscribers. In addition 13,610 copies were sent to a special list. Of these, 18 copies were sent to the President, his cabinet and his advisers; 631 to the Interstate Commerce Commission, the Reconstruction Finance Corporation, national and regional railway co-ordinators, executive officers of the railway brotherhoods, railway directors and the director of the railway division of the P.W.A.; 8,612 to state railway commissions, national legislators, state legislators, governors, chambers of commerce and the chief engineer of the U. S. Army and the board of engineers for rivers and harbors; 3,274 to financial institutions, presidents of insurance companies, universities and colleges, leading economists, industrial and business writers, daily newspapers, prominent industrialists and governors and deputy governors of federal reserve banks, 245 to railway employees and taxpayers' associations; and 1,275 to advertising agencies and other business companies.

In order to make doubly sure that the issue would attract the attention of those to whom it was addressed, the editor of the *Railway Age* sent personal letters to these 13,610 persons as well as a selected list of regular subscribers. These letters either accompanied the magazine or were sent by first-class mail so that they reached the persons addressed as nearly as possible simultaneously with the magazine. The letters sent—there were 10 different kinds—described the issue and its importance and urged close attention to its contents.

Specific References Cited

As a means of directing attention to the importance of the railroad problem as it affects individual communities,

a form containing specific references to states was enclosed in each letter sent to state railway commissioners, national legislators, state legislators, governors, chambers of commerce, the chief engineer of the U. S. Army and the board of engineers for rivers and harbors and daily newspapers. These forms—there was one for each state—listed the text pages referring to the state, the page numbers of railroads serving that state, the page numbers of industries in the state and a tabulation of industrial company plants in the state, with the names of the companies and the locations of their plants.

Newspaper Releases

The message was pounded home still further by a series of seven newspaper releases, containing excerpts from articles in the December 1 issue. These releases were sent to 4,250 newspapers, press associations, foreign writers, speakers and others engaged in disseminating information. Following the publication of this issue, the editorial matter was digested and reproduced in miniature and copies were mailed to 5,000 persons.

In other words, everything was done which could possibly be done to make the issue as effective as possible, both in its editorial columns and in its advertising pages and to make sure that its message received the immediate attention of everyone in the United States who was in a position to act.

Effect of Issue Manifested Immediately

The effect of the issue was manifested immediately. More than 600 letters acknowledging the importance of railway purchasing in relation to national recovery were received from all parts of the country. Letters were received from congressmen, governors, state legislators, I.C.C. commissioners, editors, educators, chambers of commerce, insurance companies, bankers, financiers, brokers, railway officers, supply companies and other businesses, lawyers, agricultural interests and others.

At the same time, articles based upon the seven releases and dealing with the restoration of railroad buying began to appear in newspapers throughout the country and continued to be the subject for newspaper editorials for several months. Editorials and articles appeared in 474 newspapers having an aggregate circulation of 20,567,047 readers. These editorials and articles occupied 2,940 column inches.

Excerpts from a few of the letters received follow:

From National Government Interests

I shall take great pleasure in looking this publication over and holding it at hand for ready reference concerning railway transportation.

DANIEL C. ROPER,
Secretary of Commerce.

I shall retain it for reference and study in some detail.

GEORGE H. DERN,
Secretary of War.

I have spent the last hour looking the issue over and as one who has been interested in magazines and newspapers all his life, let me say that you are entitled to great credit for having produced a remarkable book. I found much information in this special issue that is of real value to me.

ARTHUR CAPPER,
Senator from Kansas.

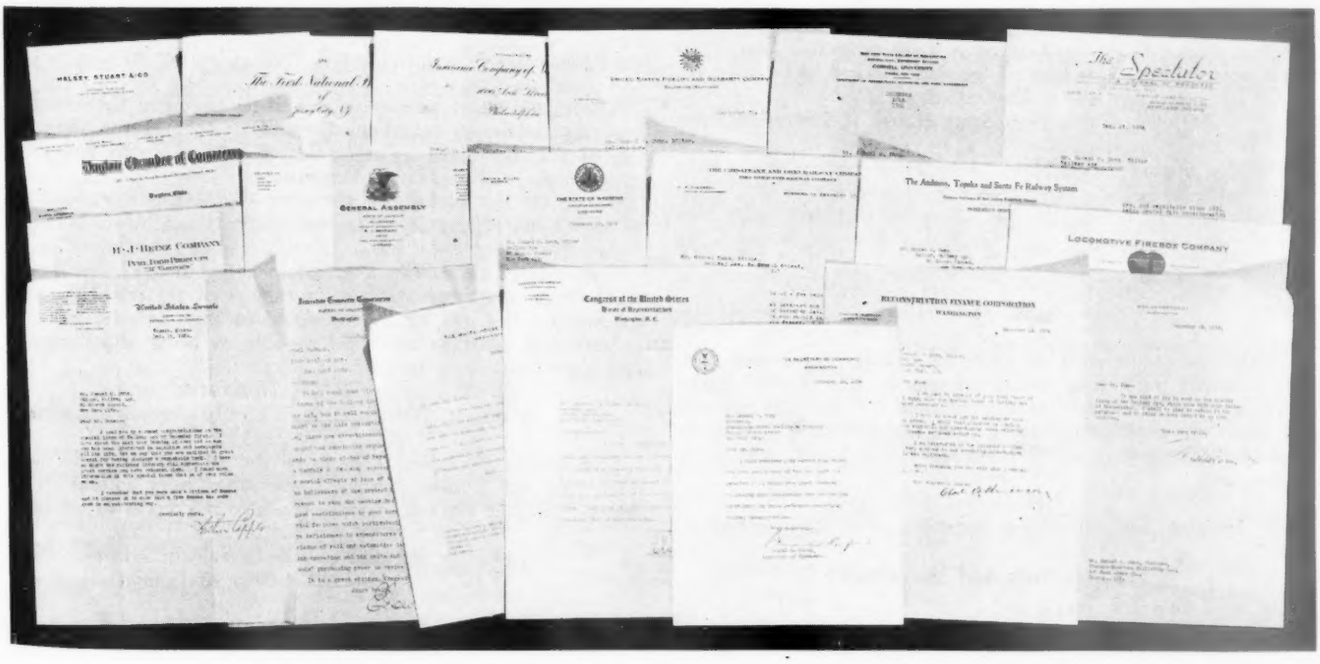
Do not hesitate to let me have your suggestions at any time.

RUSH D. HOLT,
Senator from West Virginia.

The railroad situation is of vital concern to the country and is directly related to the future progress and prosperity of the industries of the country.

JAMES P. B. DUFFY,
Congressman from New York.

With all due regard to the able presentation in the editorial section, there are advertisements that present food for thought and convincing argument for a return to the railroads to their status of buyers. The advertisement of the Norfolk & Western carries an interesting story of the social effects of loss of traffic to the rails and the hollowness of the protest by the public when it is proposed to stop the service. But this is only one of many contributions by your advertisers. Among the editorial features which particularly were of interest to me were deficiencies in expenditures on maintenance; the comparisons of rail and automotive labor and wages; the mounting operating and taxing



Hundreds of Letters Commenting Upon the Issue Were Received from All Parts of the Country

costs and the need of the railroads' purchasing power to revive industry. It is a great edition.

E. I. Lewis,
Director Bureau of Valuation, Interstate Commerce Commission.

I shall take pleasure in reading both the editorial and advertising pages relating to the present railroad situation. I am interested in the railroad problem and am very anxious to see something constructive done for the railroads.

Charles B. Henderson,
Member of the Board, Reconstruction Finance Corporation.

From State and City Officials and Legislators

More than ever it seems to me necessary that we consider the position of our railroad companies, and I feel the necessity of taking almost any steps that will continue them in the picture as large taxpayers and as buyers of materials in major quantities.

Success to you! As the governor of one small state, I shall be glad to co-operate to the extent of my ability in seeing that fair treatment is given the railways in competition with other forms of transportation.

Leslie A. Miller,
Governor of Wyoming.

The factual material in it is distinctly valuable.

A. A. Berle, Jr.,
Chamberlain of New York, N. Y.

It is the thing I have been standing for and advocating for a long time and I am glad to know that the railroads are finally waking up to their rights.

R. J. Branson,
Member, Illinois State House of Representatives.

This is a magnificent work, and I sincerely trust that I may have the opportunity during the coming session to assist those you serve in securing "old fashioned justice."

William T. Byrne,
Member, New York State Senate.

Your special issue of the *Railway Age* carries with it information that should act as an eye-opener to many people and this is especially true as to the references to Wisconsin.

Oscar H. Morris,
Member, Wisconsin State Senate.

I have read the issue carefully and agree that we cannot have prosperity throughout the country unless our railroads are given a better chance to do business on a more profitable basis than at the present time. This kind of legislation I will be in favor of.

Edward Seaman,
Member, Connecticut State House of Representatives.

I believe that if the railroads were given buying power they would enhance business and recovery to a great extent. The railroad business is one of the industries that has made this country what it is, and it is so large that few people realize its vastness.

Otis R. Johnson,
Member, Ohio State House of Representatives.

This is one of the most elaborate magazines I have ever read. Our state has put the intrastate common carrier (truck) under the South Carolina Railroad Commission and we will hail the day when our national Congress gives the Interstate Commerce Commission control of all of them and the railroads will get a square deal.

H. G. Senseney,
Member, South Carolina State House of Representatives.

From Editors and Educators

We have held for years, and especially since 1931, that the railways were being denied fair consideration by the government.

A. C. Gage,
Editor, The Portland, Ore., Spectator.

You are to be congratulated upon the typographical and literary excellence of your recent special issue of the *Railway Age*. The wealth of information it so lucidly presents and its timely optimism are most impressive.

Harold D. Valpey,
Managing Editor, Lynn, Mass., Daily Evening Item.

The material compiled in this issue shows impressively the importance of railway purchases to the durable goods industry. It is to be hoped that conditions will presently permit the resumption of these purchases upon an adequate scale.

Robert G. Sproul,
President, University of California.

I have read this number carefully and will see that it is studied by our students of transportation. It is time the railroads should inform the public concerning the unequal and unfair position they are now placed in, due to no fault of their own. The direct and indirect subsidies to other forms of transportation are threatening the existence of the railroads but as a 365-days-a-year transportation medium the railroads are now and will continue to be performing a superior type of service.

James E. Boyle,
Professor of Rural Economy, Cornell University.

In view of the large stake which the American public has in the railroads, and the importance of their buying in a normal and sustained recovery program, it is to be hoped that this issue will have a wide circulation and an intelligent reception in high places.

Harry G. Guthmann,
Associate Professor of Finance, Northwestern University.

I hope that this issue will be influential in furthering the unification of business sentiment in favor of private initiative in business as against the further expansion of government activity.

Emory R. Johnson,
University of Pennsylvania.

From Chambers of Commerce

I was much gratified to see the number of Miami valley firms, including those from Dayton and immediate vicinity, who took space in this particular issue. Your noting of the extensive buying power of the railways and the great falling off of purchases in 1933 against 1929, is impressive to say the least. However, I am optimistic for the future and such issues as that just published by the *Railway Age* blend to a considerable extent in that optimism for there is no doubt in my mind that campaigns of this nature should have their effect in resurrecting the buying power of the transportation field, and also increasing it beyond what the peak has been in the past.

Wayne G. Lee,
Managing Director, Dayton, Ohio, Chamber of Commerce.

The many sound articles in this issue have greatly strengthened my conviction that immediate adjustment of the inequalities of taxation and regulation between the railroads and their competitors is of paramount importance.

Charles W. Haensel,
Secretary, Saginaw, Mich., Board of Commerce.

This publication carries a lot of food for thought, and I sincerely hope that there may be a revival of the durable goods industries. We are vitally interested in this, and we will co-operate and assist in any way possible to bring about such a revival.

R. W. Holcombe,
Manager, Wheeling, W. Va., Chamber of Commerce.

The special December 1 issue of the *Railway Age* is most interesting and I have written a newspaper story calling attention to the large amount of space given to references to Georgia.

Thomas R. Jones,
Executive Vice-President, Savannah, Ga., Chamber of Commerce.

You have done an excellent service to the country in presenting this subject in this way and I hope that you have found a means of giving it the widest kind of publicity.

There is a prodigious amount of work in the issue, as is apparent to anyone who knows anything about publication effort. In addition to the very illuminating material in it, much of which I have already read when first taking up the magazine, I find that these tables of cost are going to be very valuable file for future reference.

WALTER W. R. MAY,
Manager, Portland, Ore., Chamber of Commerce.

The publication is full of valuable information and, in fact, constitutes a manual on the railroads and their necessities at the present time. I am going to keep this copy readily available and am sure that it will be of value to me and to our office force in the coming year.

T. A. STEVENSON,
Manager, Tacoma, Wash., Chamber of Commerce.

From Insurance Companies, Bankers and Brokers

The cause of the railroad is presented in a very forceful manner, and I am sure it should contribute to the effort that is uppermost in the minds of many investors to influence public sentiment to the extent that the railroads should have a fair deal. Anyone who gives any thought to the present situation realizes that there is very great discrimination against the railroads which should be corrected. You are to be commended for your efforts in that direction.

E. ASBURY DAVIS,
President, United States Fidelity and Guaranty Co.,
Baltimore, Md.

We are decidedly interested in the special issue of the *Railway Age*. The writer is quite in sympathy with your view of this subject and would consider that you are entirely right in believing that a restoration of the durable goods industry is necessary before we can expect any great revival in other business conditions.

GEORGE H. REANEY,
President, United States Guarantee Co., New York, N. Y.

The manner in which you have presented the case is a most effective one and so simple as to make it plain to the man in the street that the railroads should be given assistance in some form.

F. HIGHLANDS BURNS,
Chairman of the Board, Maryland Casualty Company,
Baltimore, Md.

I cannot but compliment you on your presentation of the situation in which the railroads of this country find themselves. A wide distribution of the issue should do much to clarify the subject in the minds of the public and be quite helpful in furthering and bringing about such changes as will eventually rebound beneficially to all of our transportation systems and be reflected favorably in a restoration of our general economic condition.

V. H. ROSSETTI,
President, The Farmers and Merchants National Bank,
Los Angeles, Calif.

Your issue contains a number of very interesting articles, with most of which I am in complete agreement. Certain regulation of railways ought to be abolished on the ground that they are no longer monopolies but are engaged in a highly competitive industry or else their competitors ought to be treated as they are in the matter of regulation.

EDMUND PLATT,
Vice-President, Marine Midland Group, Inc.,
New York, N. Y.

The writer feels and no doubt the majority of the banks throughout the United States do, that if we ever want to get rid of depression and if we ever want railroad securities to again become valuable, we must pass laws or change conditions to enable railroads not only to make expenses but also a legitimate profit on their legitimate investments.

FRANK KIRCHHOF,
President, The American National Bank, Denver, Col.

I am delighted with your campaign for fair competition in the field of transportation, so ably presented in the special issue of the *Railway Age*.

I have always felt that railroad companies were too reticent about presenting to the public the human aspects of that industry, with the result that too many people look upon the railroads as they did the Federal government—an abstract agency—a thing wholly apart from their daily existence and with an unfailing source of income. Lately this detachment has suffered something of a financial shock. I read the *Railway Age* regularly.

CHARLES C. HUITT,
President, The Dunbar National Bank of New York,
New York, N. Y.

I have been quite amazed at the case presented for the railroads in the December 1 issue of your magazine.

Too few realize the important of the railroads in our economic picture. It is our privilege to count a number of the outstanding railroads among our clientele, and speaking for myself and in their behalf, I sincerely hope that your work gets the full publicity and attention which it deserves.

KELLEY GRAHAM,
President, The First National Bank of Jersey City,
Jersey City, N. J.

The December 1 number of the *Railway Age* has just come in and I look forward with anticipation to examining it with care. Just by turning over the leaves I can see that you have done a grand job and I hope it may prove to be a helpful and effective one.

LEONARD P. AYRES,
Vice-President, The Cleveland Trust Company,
Cleveland, Ohio

We find this most interesting and instructive, and agree with you that as soon as the railways receive the same application of the principle of fair play as other industries, it will be a great mark toward rapid recovery in this country.

H. B. HAUN,
Vice-President Lewis & Hoffman Co., Milwaukee, Wis.

The magazine contains very impressive evidence of the great buying power of the railroads and your editorial material supports very well your contention that recovery is in no small degree dependent upon restoration of the railroad's buying power. We are genuinely hopeful that your efforts may be productive of the desired results.

A. E. BRYSON,
Vice-President, Halsey, Stuart & Co., Chicago, Ill.

From Railway Officers

I have examined your special issue of December 1, 1934, with great interest. You have presented the railroad situation in its several aspects with great clearness, and I feel sure that you have made a valuable contribution toward a better understanding of it.

S. T. BLEDSOE,
President, Atchison, Topeka & Santa Fe

I have read with great interest and admiration all of the contents of your issue of December 1. I feel that this is a monumental piece of work and should do a vast amount of good along the lines which you design. I hope that those who should be educated by it will carefully read it so as to obtain the essential information contained therein.

W. J. HARAHAN,
Senior Vice-President, Chesapeake & Ohio

This issue reached me yesterday and I hasten to compliment you upon the effective manner in which it was prepared, as well as for the many interesting articles contained therein, which I have read with the greatest of pleasure.

P. H. JOYCE,
President, Chicago Great Western

I have just had an opportunity to look over the *Railway Age* of December 1. I congratulate you on this monumental piece of work, because I know and realize fully the amount of labor, care and patience it took to get up this document.

W. D. FAUCETTE,
Chief Engineer, Seaboard Air Line

I know this issue will have the most wholesome effect and will respond to the call to action on behalf of business recovery.

L. C. Fritch,
Operating Officer, Chicago, Rock Island & Pacific

I found so many interesting things in that issue that I took it home and read it, and hope that our statesmen, to whom you sent the issue, may have taken the opportunity to do likewise. If they did, they are certainly sold on the railroad's situation.

J. T. Gillick,
Vice-President, Chicago, Milwaukee, St. Paul & Pacific.

Your December 1 issue certainly is the outstanding example of any trade publication, I believe, that has ever been issued. You certainly did a grand job, and you ought to be proud of it.

C. S. Millard,
Vice-President and General Manager, Cleveland, Cincinnati, Chicago & St. Louis.

It is splendidly gotten up, in a most interesting manner, and I congratulate you! You are doing a fine job in your efforts to secure fair competition for the railroads, and one of these days we are going to see some substantial benefits as a result of it.

J. S. Pyeatt,
President, Denver & Rio Grande Western.

I have read the December 1 issue of the *Railway Age* with a great deal of interest. The analysis of the effect of the present condition of the railroads on our national business situation is very forcefully presented, and with the wide circulation given the issue, should be productive of good results.

William Atwill,
Vice-President and General Manager, Illinois Central.

I consider it one of the finest publications I have ever had the opportunity to read, first, in its material and, second, in its general get-up and attractive presentation of its educational and its advertising matter.

C. E. Johnston,
President, Kansas City Southern.

I am sure it is going to do the railroad situation a world of good, particularly as it comes out at a very opportune time on the eve of the convening of the new Congress in which the railroad problem is bound to be one of the leading issues.

C. E. Smith,
Vice-President, New York, New Haven & Hartford.

It is well prepared, and gives a very complete picture of the present situation. Its distribution among legislators and others should be most helpful in securing proper action at Washington and elsewhere.

A. C. Needles,
President, Norfolk and Western.

It is a most creditable presentation of the facts involved in the railroad problems of today. Wide distribution such as is being made of this issue should be helpful to the railroads as a whole.

Charles Donnelly,
President, Northern Pacific.

It seems to me to be an excellent and most helpful publication. I congratulate you upon this issue and upon the good work which the *Railway Age* is doing with a view to getting the railroad situation upon a sound basis.

Henry W. Anderson,
Co-Receiver, Seaboard Air Line.

I have just embraced the first opportunity to look very carefully entirely through your December 1 issue, and I have no comment other than to say I think it is a "peach."

Carl R. Gray,
President, Union Pacific.

It is certainly a wonderful production.

R. V. Fletcher,
Vice-President and General Counsel, Association of American Railroads.

The issue is a monument to the energy, intelligence and public interest of yourself and your associates.

Edwin F. Wendt,
Consulting Engineer, Washington, D. C.

What strikes me in the publication is the very effective manner in which it has been made clear to the fellow without technical training and managerial responsibilities just how essential a restoration of normal conditions in the durable industries is to general business recovery.

Rienzi B. Lemus,
Grand President, The Brotherhood of Dining Car Employees.

I have read with lively interest in the December 1 issue of the *Railway Age* your compelling editorial and the several articles on railway recovery, including the view of a number of railway executives and durable goods manufacturers.

The article "From Butte to Bogolusa" especially appeals to me, being more directly within the scope of my long experience. I would suggest to railway executives that they have this particular article published in pamphlet form and placed in the hands of every employee, few of whom realize that government regimentation is moving with relentless force through the very foundations of the railway structure.

X. H. Cornell,
Ex-General Superintendent, Alton, Bloomington, Ill.

From Supply Companies and Other Businesses

I think you have done a real public service in presenting this problem in such attractive form.

Certainly if this country needs anything it is sound specific education. It, therefore, is refreshing to have honest statements of the type you have presented, in contrast to this welter of insincere and dishonest publicity.

W. S. Landis,
Vice-President, American Cyanamid Company, New York, N. Y.

It certainly is a great number and the best job you have ever done. I know it will attract a lot of favorable attention and comment throughout the United States, and it certainly will help the railroad and railway equipment cause.

W. S. Carr,
President, Locomotive Firebox Company, Chicago, Ill.

While I expected much, I hardly anticipated an issue of such proportions and I hasten to congratulate you and your associates on the great job you did, not only for your publication but for the cause of capital goods.

Wm. J. Kelly,
President, Arthur J. O'Leary & Son Co., Chicago, Ill.

It is one of the best treatments of the relation of the present railroad situation to general recovery that I have seen.

Howard Heinz,
President, H. J. Heinz Company, Pittsburgh, Pa.

Transportation, more than any one agency, has been the cause of our growth. It must be relied upon for our future expansion. Injustice must be eliminated and a policy of fairness to all must be incorporated.

Carl F. G. Meyer,
President, Meyer Brothers Drug Co., St. Louis, Mo.

I feel sure that much benefit will result to those who read this issue and may we trust that a better understanding of the position of the railroads will gradually merge and find an effective public expression.

Geo. C. Riley,
W. E. Hutton & Co., Cincinnati, Ohio.

I am heartily in accord with the effort you are making to revive all railroads. In that connection immense effect will be reflected to the durable goods industry, which certainly is in the

(*Continued on page 504*)

All Classes of Railway Buying Higher in 1934

Annual summary shows increased outlay on practically all railroads—January heavier than December

THAT the increased industrial activity of 1934 resulted to a not inconsiderable degree from increasing purchases by railroads is confirmed by a detailed summary of their annual expenditures, which has been completed by the *Railway Age*. In this summary, the total of purchases, based on reports for the year from railroads operating 92 per cent of the mileage in the United States and earning 94 per cent of total operating revenues, is unchanged from the estimate of $625,000,000 reported in the issue of January 12.* This figure includes purchases of fuel and of materials and supplies of the railroads of the United States, with freight charges. It does not include expenditures incurred for new locomotives and cars ordered from builders or materials purchased by contractors of railway construction work. The figure is approximately $160,000,000, or 35 per cent, larger than the corresponding figure for 1933, although approximately $700,000,000 below the corresponding expenditure in 1929.

The purchases last year included approximately $220,000,000, or 35 per cent of the total, for fuel; $78,300,000, or 12.5 per cent of the total, for forest products; $177,275,000, or 29 per cent, for iron and steel products; and $149,425,000, or 23.5 per cent, for a wide variety of miscellaneous materials. As nearly as can be estimated from the classified figures received from the railroads, fuel purchases included $182,000,000 for coal, $34,600,000 for fuel oil and $3,400,000 for other fuel, including $2,600,000 for gasoline. Approximately $185,000,000 of the fuel was used in locomotives.

Expenditures for forest products included approximately $39,700,000 for cross ties, $4,050,000 for switch and bridge ties, and approximately $32,650,000 for timber and lumber, the latter being divided equally between the bridge and building lumber and car and locomotive lumber.

Purchases of Fuel, Materials and Supplies by Railroads of the United States—1924 to 1934, Incl. (000 Omitted)

	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924
Fuel	$220,000	$179,150	$178,250	$244,500	$ 306,500	$ 364,392	$ 384,608	$ 438,821	$ 473,354	$ 459,465	$ 471,656
Forest products	78,300	41,185	52,200	76,250	134,600	157,551	160,794	175,729	186,291	170,305	180,872
Iron and steel products	177,275	112,685	100,550	202,100	329,700	437,840	397,544	432,604	507,302	419,255	365,610
Miscellaneous	149,425	124,730	114,000	172,150	267,700	369,752	328,395	348,774	392,085	343,018	324,917
Grand total	$625,000	$457,750	$445,000	$695,000	$1,038,500	$1,329,535	$1,271,341	$1,395,928	$1,559,032	$1,392,043	$1,343,055
Per cent of operating revenue	18.4	14.6	14.1	16.8	20.2	21.8	20.8	22.8	24.4	22.7	22.7

* Includes $15,000,000 to cover purchases of switching and terminal companies and short lines; also freight charges and purchases with P.W.A. loans not included in some statements reported by Class I roads.

More Iron and Steel

Total expenditures of iron and steel included approximately $33,200,000 for rail; $17,600,000 for wheels, tires and axles; and $32,400,000 for frogs, switches, crossings and other track materials. In addition, about $10,200,000 is estimated to have been spent for bar

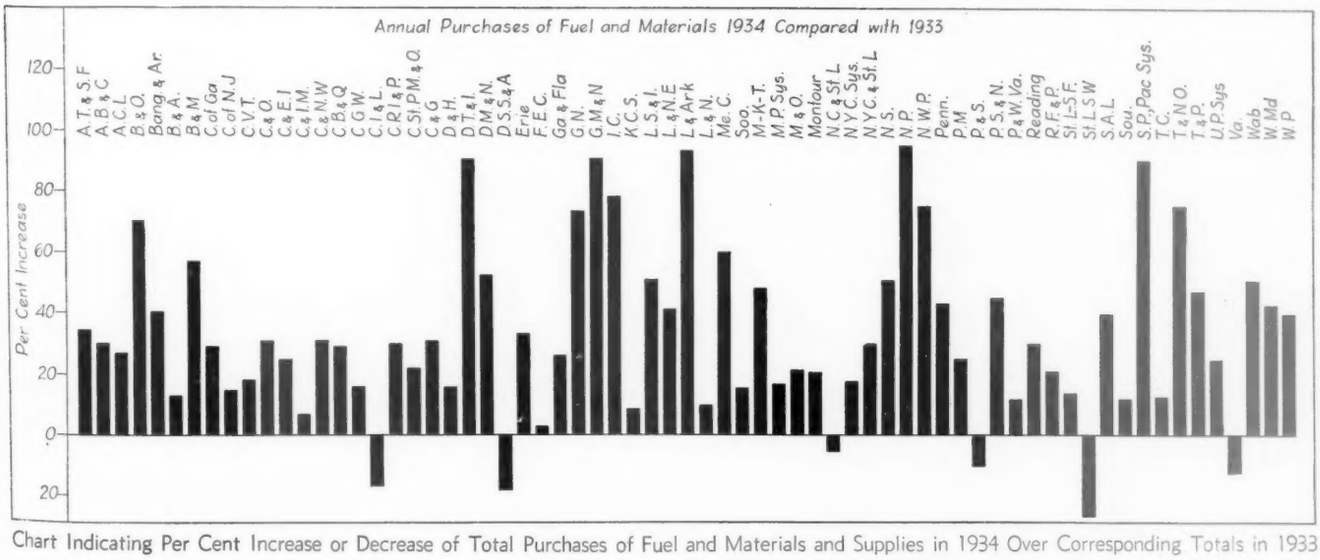


Chart Indicating Per Cent Increase or Decrease of Total Purchases of Fuel and Materials and Supplies in 1934 Over Corresponding Totals in 1933

Purchases of Materials and Supplies by Railroads of the United States*

	1934	1933	1932	1931	1930	1929
Fuel:						
Coal	$182,000,000	$151,150,000	$146,550,000	$204,000,000	$249,050,000	$296,371,000
Fuel oil	34,600,000	24,350,000	29,200,000	36,750,000	53,600,000	62,132,000
All other	3,400,000[1]	3,650,000	2,500,000	3,750,000	3,850,000	5,889,000
Total fuel	$220,000,000	$179,150,000	$178,250,000	$244,500,000	$306,500,000	$364,392,000
Forest Products:						
Cross ties (treated & untreated)	$ 39,700,000	$ 19,750,000	$ 27,550,000	$ 44,000,000	$ 75,500,000	$ 83,421,000
Switch and bridge ties (treated & untreated)	4,050,000	3,040,000	4,250,000	7,500,000	9,150,000	10,642,000
Timber and lumber	32,650,000	16,250,000	18,100,000	21,500,000	43,550,000	55,002,000
Other forest products	1,900,000	2,145,000	2,300,000	3,250,000	6,400,000	8,486,000
Total forest products	$ 78,300,000	$ 41,185,000	$ 52,200,000	$ 76,250,000	$134,600,000	$157,551,000
Iron and Steel Products:						
Steel rail (new and second-hand)	$ 33,200,000	$ 10,650,000	$ 15,500,000	$ 41,500,000	$ 75,000,000	$ 94,195,000
Wheels, axles and tires	17,600,000	19,050,000	18,250,000	26,500,000	32,700,000	41,269,000
Track materials, fastenings, etc.	32,400,000[2]	16,950,000	18,500,000	32,750,000	53,700,000	70,971,000
Structural and bar steel, forgings, shapes, etc.	23,400,000[3]	13,750,000	7,800,000	25,200,000	39,200,000	57,330,000
Flues and tubes for boilers	10,200,000	3,390,000	1,700,000	4,650,000	6,200,000	7,194,000
Telegraph and telephone, interlocking & signal	8,475,000[4]	6,245,000	6,000,000	13,500,000	25,000,000	30,878,000
Bolts, nuts, washers, rivets, springs, etc.	9,700,000[5]	8,550,000	3,950,000	9,500,000	14,800,000	20,272,000
Locomotive and car castings	29,700,000[6]	19,150,000	19,400,000	27,750,000	47,500,000	65,086,000
Machinery, boilers, other iron & steel	12,600,000[7]	14,950,000	9,450,000	20,750,000	35,600,000	50,645,000
Total iron and steel products	$177,275,000	$112,685,000	$100,550,000	$202,100,000	$329,700,000	$437,840,000
Miscellaneous:						
Cement	$ 1,740,000	$ 1,350,000	$ 1,750,000	$ 4,950,000	$ 5,100,000	$ 7,628,000
Lubricating and illuminating oils, etc.	14,900,000[8]	13,340,000	14,300,000	15,500,000	18,200,000	24,328,000
Metals and metal products	23,800,000[9]	19,550,000	11,250,000	20,800,000	41,500,000	57,497,000
Ballast	5,750,000	5,160,000	9,300,000	6,850,000	18,500,000	23,750,000
Appliances for locomotives & cars	10,000,000[10]	8,650,000	5,150,000	11,750,000	18,000,000	25,043,000
All electrical materials	7,120,000	6,950,000	5,250,000	13,750,000	14,700,000	17,641,000
Stationery and printing	13,500,000	11,575,000	14,400,000	18,500,00	20,300,000	25,567,000
Supplies for dining cars and restaurants	12,810,000	9,350,000	8,500,000	19,750,000	21,500,000	28,899,000
Rubber and leather goods	5,700,000	4,505,000	2,950,000	4,500,000	7,500,000	9,657,000
Paint supplies, drugs and chemicals	26,200,000[11]	14,900,000	13,700,000	14,500,000	26,800,000	35,985,000
Train and station supplies and miscellaneous	27,905,000[12]	29,400,000	27,450,000	41,300,000	75,600,000	113,757,000
Total miscellaneous	$149,425,000	$124,730,000	$114,000.000	$172,150,000	$267,700,000	$369,752,000
Grand Total	$625,000,000	$457,750,000	$445,000,000	$695,000,000	$1,038,500,000	$1,329,535,000

* Data for 1930, 1931, 1932, 1933 and 1934 compiled by *Railway Age;* data for 1929 by Bureau of Railway Economics. Figures include foreign-line freight.

[1] Includes $2,600,000 of gasoline.
[2] Includes $7,000,000 of frogs and switches; $25,400,000 of fastenings.
[3] Includes $3,450,000 of iron bridges; $9,450,000 bar steel; $2,200,000 boiler steel; $8,300,000 car and locomotive forgings.
[4] Includes $7,765,000 interlocking and signal material; $710,000 telegraph and telephone.
[5] Includes $7,505,000 bolts, nuts and washers; $2,245,000 of springs.
[6] Includes $7,200,000 locomotive castings; $22,500,000 car castings.
[7] Includes $5,400,000 track tools and motor-car parts; $3,960,000 hoisting and pumping material; $2,280,000 machinery.
[8] Includes $5,450,000 lubricating oil; $1,880,000 illuminating oil; $3,075,000 waste, boiler chemicals, etc.
[9] Includes $1,480,000 tubing; $12,400,000 brass castings. $3,300,000 pipe and fittings; $4,930,000 hardware; $1,690,000 hand tools.
[10] Includes $4,000,000 air-brake material; $6,000,000 locomotive appliances.
[11] Includes $6,500,000 wood preservative; $19,700,000 other material.
[12] Includes $2,580,000 auto accessories; $5,500,000 ice and sawdust; $2,500,000 building materials; $2,750,000 foundry supplies.

Quantities of Material Purchased—1934

	Bituminous Coal Net Tons	Fuel Oil Gal.	Cross Ties Units	Sw. & Br. Ties Bd. Ft.	Timber & Lumber Bd. Ft.	Rail G. T.	Cement Bbl.	Ballast Cu. Yd.
Alton	510,180	No report	No report	No report	No report	12,452	No report	44,175
Alt. & Sou.	32,075	None	9,722	131,256	206,355	492	7	None
A. C. L.	1,088,162	800,536	1,146,756	3,742,070	10,178,898	5,131	5,402	No report
Bang. & Aroos.	93,063	10,177	115,951	437,414	No report	3,822	No report	No report
B. & M.	788,125	11,493	131,716	873,679	7,822,855	30,349	2,458	154,412
Camb. & Ind.	16,326	None	12,511	32,520	No report	183	None	None
C. of Ga.	413,336	500,216	419,621	834,302	4,462,054	4,088	1,125	21,887
C. of N. J.	910,106	385,572	7,711	147,182	2,289,530	325	960	4,826
C. & W. C.	54,964	25,745	63,875	164,210	942,812	36	50	13,421
C. B. & Q.	2,247,537	23,523,167	1,300,585	2,750,055	10,565,810	27,495	4,693	626,818
C. I. & L.	No report	No report	No report	No report	No report	76,791	No report	No report
Clinchfield	152,372	64,156	224,737	449,215	953,000	1,000	None	33,000
C. & G.	26,245	None	40,811	No report	No report	101	31	No report
D. & H.	410,753	529,569	None	647,335	7,234,690	5,475	2,387	8,754
D. T. & I.	89,329	12,000	172,366	809,250	1,874,600	None	90	105
D. M. & N.	145,000	218,425	19,928	1,022	991,616	None	1,211	11
E. J. & E.	265,345	102,610	150,183	575,039	1,659,456	None	400	991
F. E. C.	774	18,955,671	276,812	584,109	865,241	None	1,350	25,858
Ga. & Fla.	No report	None	104,538	270,291	473,284	None	9	None
G. B. & W.	35,826	None	168,590	74,002	80,003	None	90	None
G. M. & N.	120,155	1,870	142,822	759,750	1,372,880	4,961	None	86,804
L. S. & I.	17,319	4,422	56,492	306,513	199,233	None	105	None
L. V.	1,018,145	776,744	268,628	224,987	6,506,499	541	1,100	74,301
L. & A.	847	15,284,742	514,111	1,300,918	4,483,218	None	160	41,502
L. & N.	2,351,379	None	801,174	4,688,047	10,147,700	17,941	2,359	591,327
Me. C.	267,502	None	270,423	650,059	2,353,282	4,237	379	2,372
M. P. lines	2,126,308	136,643,203	2,252,522	No report	No report	25,015	No report	No report
M. & O.	303,999	122,427	384,081	2,576,133	1,299,126	4,593	693	3,997
Montour	41,035	20,999	9,678	21,646	99,424	500	31	1,189
N. N.	9,537	None	25,030	28,196	No report	None	None	None
N. S.	86,531	78,758	420,095	165 sets	3,658,456	5,489	28	No report
N. P.	1,954,585	7,656,776	1,166,279	2,225,143	25,061,607	7,504	9,827	44,170
Nw. P.	492	12,844,688	No report	No report	No report	No report	No report	No report
P. & S.	20,377	1,435	35,169	237,942	34,995	None	186	None
P. & W. V.	185,781	23,877	49,411	212,831	No report	No report	165	508
Reading	1,018,432	758,597	13,172	73,605	6,787,088	8,925	1,953	8,405
S. D. & A. E.	24	2,834,118	No report	No report	No report	No report	No report	No report
S. P.-Pac. lines	182,128	445,049,118	No report	No report	No report	No report	No report	No report
St. L.-S. F.	731,700	106,579,569	1,785,355	10,639,553	21,298,468	17,620	9,683	No report
T. C.	67,259	None	126,221	171,908	151,467	708	6	4,045
Utah	21,058	None	23,116	149,449	18,464	None	106	None
W. Md.	428,795	427,181	No report	No report	No report	5,518	3,362	No report

Note—For corresponding totals for 1933, see *Railway Age,* March 10, 1934.

iron, forgings and shapes; $10,200,000 for boiler tubes; $8,475,000 for interlocking, signal, telegraph and telephone material; $9,700,000 for bolts, nuts and washers; and $29,700,000 for locomotive and car castings.

The railroads are also estimated to have spent $14,900,000 in 1934 for lubricants, illuminating oils, grease, journal-box packing, etc.; $23,800,000 for soft metals, including copper and brass; approximately $5,700,000 for commercial ballast; $7,120,000 for electrical materials,* $10,000,000 for car and locomotive appliances; $13,500,000 for stationery and printing; $12,810,000 for supplies for dining cars and restaurants; $5,700,000 for rubber and leather goods and fabrics; and $26,200,000 for paint supplies, glazing materials and various chemicals, including those for water treatment.

Based on reports of 33 roads operating about 50,000 miles of line, the purchases are estimated to have included $5,400,000 for track tools and motor-car parts,

* Restricted to electrical materials reported separately from other materials and equipment.

Purchases of Representative Railroads, 12 Months, 1934

	Fuel	Cross ties	Rail	Other material	Total	1933 total	Ratio pur. to op. rev. 1934 per cent
Alton	$960,658	$575,341	$419,913	$2,159,145	$4,115,052	No report	24.8
Alton & Southern	66,026	13,457	13,129	113,676	206,288	No report	...
Ann Arbor	431,641§	45,579	3,389	233,389	713,998	No report	21.4
A. T & S. F.*	10,150,482	1,082,600	1,338,851	10,917,559	23,489,492	$17,512,511	18.3
A. B. & C.	158,414	100,071†	18,182	424,445	701,112	537,086	24.9
A. C. L.	3,484,513	876,558	193,153	4,171,214	8,725,438	6,893,704	22.0
B. & O.	8,317,648	891,226†	1,244,739	12,242,831	22,696,442	13,298,214	16.8
Bang. & Aroos.	426,183	58,982	150,258	586,929	1,222,352	976,891	19.8
Belt Railway of Chicago	454,805	83,390	51,932	268,702	858,829	No report	...
B. & A.	2,144,341	297,020†	77,593	1,509,293	4,028,262	3,566,570	...
B. & M.	3,410,150	110,176	1,111,980	5,204,245	9,836,551	6,247,098	23.2
Camb. & Ind.	32,269	10,943	4,638	70,341	118,191	No report	11.3
C. of Ga.	1,031,055	205,923	151,848	1,525,161	2,913,987	2,245,460	21.7
C. of N. J.	2,610,291	4,867	14,332	1,621,971	4,251,461	3,691,621	14.5
C. Vt.	598,291§	84,138	19,238	484,899	1,186,529	1,101,531	23.8
C. & W. C.	154,280	64,770	19,720	186,254	425,024	No report	22.2
C. & O.	.....	.....	.....	.....	14,035,058	10,944,695	13.0
C. & E. I.	775,305§	180,531	157,540	1,096,311	2,209,687	1,759,899	17.3
C. & I. M.	131,294§	31,337	.....	345,648	508,279	471,485	17.1
C. & N. W.	4,765,757	245,122†	953,806	9,453,183	15,417,879	11,767,976	20.2
C. B. & Q.	4,842,638	1,247,842	1,034,656	8,154,726	15,279,862	11,751,523	19.1
C. G. W.	1,508,232	315,312	126,463	1,352,579	3,302,586	2,845,581	21.4
C. I. & L.	12,432	68,796†	99,714	517,983	698,925	842,378	23.4
C. M. St. P. & P.	5,536,390	2,006,722	731,631	8,766,128	17,040,871	No report	19.6
C. R. I. & P.	5,263,410	324,144	119,529	6,427,524	12,134,607	9,395,390	18.1
C. St. P. M. & O.	1,926,770	203,523	.....	1,322,044	3,452,344	2,837,867	23.2
Clinchfield	226,256	154,757	40,660	401,494	823,167	564,455	15.7
C. & G.	77,136	35,370	1,552	108,343	222,401	170,071	25.4
D. & H.	1,885,386	.....	226,927	3,043,572	5,155,885	4,443,592	22.0
D. L. & W.	2,299,354	207,424	417,591	4,436,599	7,360,968	No report	16.4
D. T. & I.	202,802	154,399	.....	390,960	748,161	393,488	12.8
D. M. & N.	586,901	13,331	.....	978,845	1,579,077	No report	16.6
D. S. S. & A.	247,699	46,418†	.....	115,403	409,520	268,288	18.7
E. J. & E.	461,971	207,470	.....	624,555	1,293,996	1,573,161	12.5
Erie	4,762,039	1,302,982†	1,212,941	7,299,950	14,577,927	10,932,952	18.4
F. E. C.	513,436	198,113	.....	527,241	1,238,790	1,191,689	16.3
F. S. & W.*	37,600	42,214	.....	49,240	129,061	No report	19.0
Ga. & Fla.	100,962	62,404	.....	125,989	289,355	229,859	28.0
G. N.	5,894,246	1,564,634†	798,275	6,343,696	14,600,851	8,455,957	20.6
G. B. & W.	147,501	96,905	.....	90,837	335,243	No report	28.5
G. M. & N.	252,883	128,306	118,633	694,826	1,194,648	633,181	22.8
I. C.	6,531,126	1,730,209	848,703	15,827,598	24,937,636	14,059,568	27.2
K. C. S.	548,976	87,662	.....	898,428	1,535,063	1,405,598	16.0
L. S. & I.	82,121	29,757	.....	127,758	239,636	159,472	16.8
L. & N. E.	228,597	14,086	127,291	347,291	717,265	504,608	20.8
L. V.	3,948,210	268,772	19,702	4,785,827	9,022,511	No report	22.6
L. & A.	158,303	195,512	.....	884,153	1,237,968	628,266	27.8
L. & N.	3,820,998	636,186	659,217	5,082,947	10,199,348	9,293,354	14.6
Me. C. and Port Term. Co.	1,261,080	383,481	155,189	1,062,304	2,862,054	1,781,001	26.4
M. St. P. & S. S. M.	1,875,036	535,098†	64,073	1,916,425	4,390,632	3,756,379	19.6
M.-K.-T. lines	1,636,401	427,288	179,328	2,492,895	4,735,912	3,168,577	17.9
M.P. lines	1,805,736	1,873,263	962,047	15,240,183	19,881,229	17,121,052	20.4
M. & O.	598,072	254,326	142,311	672,788	1,667,497	1,377,620	19.5
Monong.	102,451	60,600	65,706	129,564	358,321	No report	9.4
Montour	76,380	17,286	18,483	232,079	344,228	283,153	18.4
N. C. & St. L.	806,099	321,495†	146,332	1,295,461	2,569,387	2,724,007	20.0
Nev. N.	46,393	19,795	.....	31,435	97,623	No report	27.2
N. Y. C. lines, except B. & A.	.....	.....	.....	.....	51,584,565	43,533,681	16.4
N. Y. C. & St. L.	.....	.....	.....	.....	5,328,719	4,008,164	16.0
N. Y. N. H. & H.	4,179,511	287,500†	944,960	7,194,018	12,605,990	6,110,894	17.6
N. S.	278,658	249,095	116,126	393,527	1,037,406	675,639	21.8
N. P.	4,544,974	921	285,420	10,222,929	15,054,244	7,787,378	29.4
Nw. P.	261,051	34,457‡	27,253	201,582	524,343	298,269	16.3
Penna. & L. I.	17,261,092	791,650	3,797,054	34,022,884	55,872,680	43,069,292	17.5
P. M.	.....	.....	.....	.....	4,590,844	3,673,944	18.6
P. & S.	38,703	33,019	.....	47,205	118,927	129,382	18.5
P. S. & N.	57,018§	39,437	12,170	111,529	220,158	152,569	24.8
P. & W. Va.	106,726	49,205	277	185,882	342,090	305,288	12.5
Reading	4,007,879	13,018	330,334	3,531,362	7,882,593	6,006,128	14.6
R. F. & P.	546,667	See O.M.	See O.M.	857,334	1,404,001	1,163,016	22.8
St. L.-S. F.	2,945,921	1,042,674	644,242	5,198,140	9,830,977	8,574,417	23.6
St. L. Sw.	366,843§	7,733	.....	993,464	1,368,045	1,796,640	9.7
S. D. & A. E.	59,611	17,806	2,257	55,299	134,973	No report	30.8
S. A. L.*	2,731,989§	1,033,545	873,606	4,427,180	9,066,320	6,447,375	24.6
Sou.	5,586,009	2,822,780	575,009	7,285,190	16,268,988	12,456,842	16.4
S. P.-Pac. lines	8,337,488	628,765	1,880,507	9,788,226	20,634,986	10,966,960	17.8
T. C.	115,891	107,857	22,683	157,003	403,434	360,139	19.0
T. & N. O.	2,174,560	294,468†	.....	3,155,411	5,624,439	3,209,346	17.6
T. & P.	1,070,449	279,004†	72,773	2,306,850	3,729,076	2,538,882	16.7
U. P.	9,166,944§	678,067	960,672	12,880,261	23,685,950	18,935,707	19.1
Utah	25,613	29,742	.....	41,001	96,356	109,718	13.2
Virginian*	454,947	233,006†	87,424	764,518	1,539,897	No report	11.6
Wabash	2,277,636	685,174	369,186	3,753,446	7,085,442	4,695,706	18.5
W. Md.	731,035	412,395	200,331	1,795,470	3,139,231	2,205,859	22.6
W. P.	903,200	250,000†	272,600	1,219,500	2,645,300	1,895,044	21.5
W. & L. E.*	454,566§	71,423	174,708	1,553,349	2,254,046	No report	20.0

* December estimated.
† All ties.
‡ Forest products.
§ Locomotive fuel.

$3,960,000 for hoisting and pumping material, $2,280,000 for machinery, $3,300,000 for pipe and fittings, $4,930,000 for hardware, $1,690,000 for hand tools exclusive of track tools, $2,580,000 for automotive accessories, $5,500,000 for ice and sawdust, and approximately $6,500,000 for wood-preserving chemicals.

Disregarding fuel, approximately $158,000,000, or 25 per cent of the total purchases last year, were for maintenance of way and structures; approximately $150,000,000, or 24 per cent, for maintenance of equipment; approximately $41,000,000, or 6.5 per cent, for transportation; and approximately $54,000,000, or 8.6 per cent, for materials for two or more departments.

Purchases in the aggregate are estimated to have involved approximately 83,000,000 tons of coal, 1,900,000,000 gal. of fuel oil, approximately 23,500,000 gal. of lubricating oils, 25,000,000 gal. of illuminating oils, 32,600,000 gal. of gasoline and other fuels, for internal-combustion engines, 840,000 bbl. of cement, exclusive of that furnished by contractors, 52,500,000 cross ties and 1,065,000,000 ft. b. m. of timber and lumber, including switch and bridge ties, together with 11,100,000 yd. of ballast purchased from commercial concerns.

The roads spent 23 per cent more for fuel in 1934 than in 1933, while expenditures for forest products were 90 per cent greater in the previous year, with iron and steel expenditures showing a 57-per cent increase and miscellaneous expenditures a 20-per cent increase over the previous year. While increased prices under the codes were responsible for some of the increase in expenditures for fuel and materials and supplies, the comparative figures indicate substantial increases in the volume of all principal lines of railway buying. The increases are especially marked in ties, lumber, rails, track materials, car and locomotive castings, bearing metals, car and locomotive appliances, electrical material and paint supplies. Significant of the trend of purchases, so far as they are shown by expenditures alone, is the fact that total purchases, after declining from 21.8 per cent of total operating revenues in 1929 to 14.1 per cent in 1932, rose to 14.6 per cent in 1933 and to 18.4 per cent in 1934.

Increases General

The expenditures for fuel and for materials and supplies in 1935 were larger on practically every railroad in the country than in 1934, the increases ranging from 10 to 90 per cent. The annual bill for fuel and for materials and supplies was approximately $6,000,000 higher than in 1933 on the Santa Fe, $2,000,000 higher on the Atlantic Coast Line, approximately $9,000,000 higher on the Baltimore & Ohio, $3,500,000 higher on the Boston & Maine, Chicago & North Western, Chicago, Burlington & Quincy, the Erie and the Great Northern, approximately $3,000,000 higher on the Rock Island and Missouri Pacific lines, approximately $10,000,000 on the Illinois Central including purchases with P.W.A. funds, $8,000,000 higher on the New York Central lines, $12,000,000 higher on the Pennsylvania, $4,000,000 on the Southern and $5,000,000 higher on the Union Pacific.

Increases in January and February

Incomplete reports for 1935 indicate expenditures for fuel and materials and supplies of $46,500,000 in the month of January and $48,000,000 in February.* These totals are higher than the corresponding totals in 1934 and the purchases in December, 1934, and show increased expenditures for fuel, ties and materials for general maintenance. The increase in dollar expenditures over January and February last year reflects to some extent increases in material prices but also the preparations for such increases in maintenance work as were permitted by the temporarily better tone of earnings. The extensive work in air-conditioning passenger equipment is especially noteworthy.

* For purchases by months, see issue of January 12, 1935.

The Story of the December 1 Issue

(*Continued from page 500*)

doldrums and must in some way be revived if we are ever to get out of this morass in which we are all now floundering.

WILLIAM L. SWEET,
Treasurer, Rumford Chemical Works, Rumford, R. I.

It is a most outstanding piece of work and I congratulate you and your colleagues upon its excellence. At a time when everyone seems to be taking a "pot shot" at the railroads, it is most encouraging to see such a splendid exposition of rail transportation and the support given by the allied industries. The advertising pages vie in interest with the editorial section. In every way, the December 1 issue is a memorable one.

CHARLES H. EYLES,
President, The Richard A. Foley Advertising Agency, Inc., Philadelphia, Pa.

I am especially interested in the attitude taken by Mr. Eastman in regard to the co-ordinating of all railway and other transportation agencies, and put them under the general supervision of one governmental commission. This is what I have been advocating for the past 26 years. It seems to me that until this is done there will always be an unfair distribution of governmental restrictions and governmental favors with respect to certain transportation agencies.

I agree with you thoroughly that the railroads have been discriminated against and that this discrimination must cease if the railroad transportation industry is to come back into its rightful place in our economic organization.

ROYAL MEEKER,
President, Index Number Institute, New Haven, Conn.

From Others

I have read almost from cover to cover the December 1 edition of the *Railway Age* and I found it far more interesting and stimulating than the novel I laid down to pick up your magazine. For nearly 40 years I have been reading and writing briefs and arguments. Never have I read one that was clearer, more to the point, or more convincing than that contained in your publication.

If arguments such as this do not prevail in the long run, it will be one more demonstration of what we all fear to be the fact —that the most vital public questions are decided along the lines of political expediency and not on their merits or with the real good of the public in view.

ROGER SHERMAN,
Member, Tenney, Harding, Sherman & Rogers, Chicago, Ill.

I have read with great interest and profit, and am greatly impressed with the wonderful argument, cogent and unanswerable, that it recites. The nation is under much obligation to you and the *Railway Age* for this effort, and the pains and expense that you have incurred in bringing the argument to the attention of so many legislators and other persons of like influence. I am sure that the railroads will appreciate so forceful a presentation of their situation and troubles. Do not slack your hand in the work you have undertaken.

J. W. REDMOND,
Lawyer, Newport, Vt.

I quite agree with the general attitude that you take; and have felt for a long time that the railroads ought to be given a fair

"shake." Certainly I am not in favor of granting to railroads any favors that they are not fully entitled to, but I do feel that an industry that has so great a bearing on our national well being ought to be given the fair and decent consideration it is entitled to.

ROY F. CROWLEY,
General Manager, The Tinley Farms, St. James, Minn.

I know we have to have a good railroad system in this country. Right now with 4 or 5 inches more snow the trucks are done. We are building highways and letting the trucks tear them up. Our people do not seem to understand that we cannot afford to keep up two systems of transportation.

J. E. EASTGATE,
Owner, Eastgate's Willobank Farm, Larimore, N. D.

It seems to me that the case for the revival of durable goods industries through encouragement of the railroads has been convincingly presented, both in the editorial pages and in the advertisements.

EDWARD S. COWDRICK,
New York, N. Y.

You are to be congratulated on conceiving and carrying out such a means of conveying to a non-technical reader the story of the railroad situation as it appears to be today.

PHILIP HEWES,
Avon, Conn.

I am sure this issue will be read with much interest and benefit.

REV. CHARLES E. COUGHLIN,
Royal Oak, Mich.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended March 16 totaled 597,432 cars, an increase of 10,162 cars as compared with the preceding week but a decrease of 30,117 cars as compared with the corresponding week of last year. This was, however, an increase of 143,795 cars as compared with 1933. Miscellaneous freight and forest products showed increases as compared with last year. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, March 16

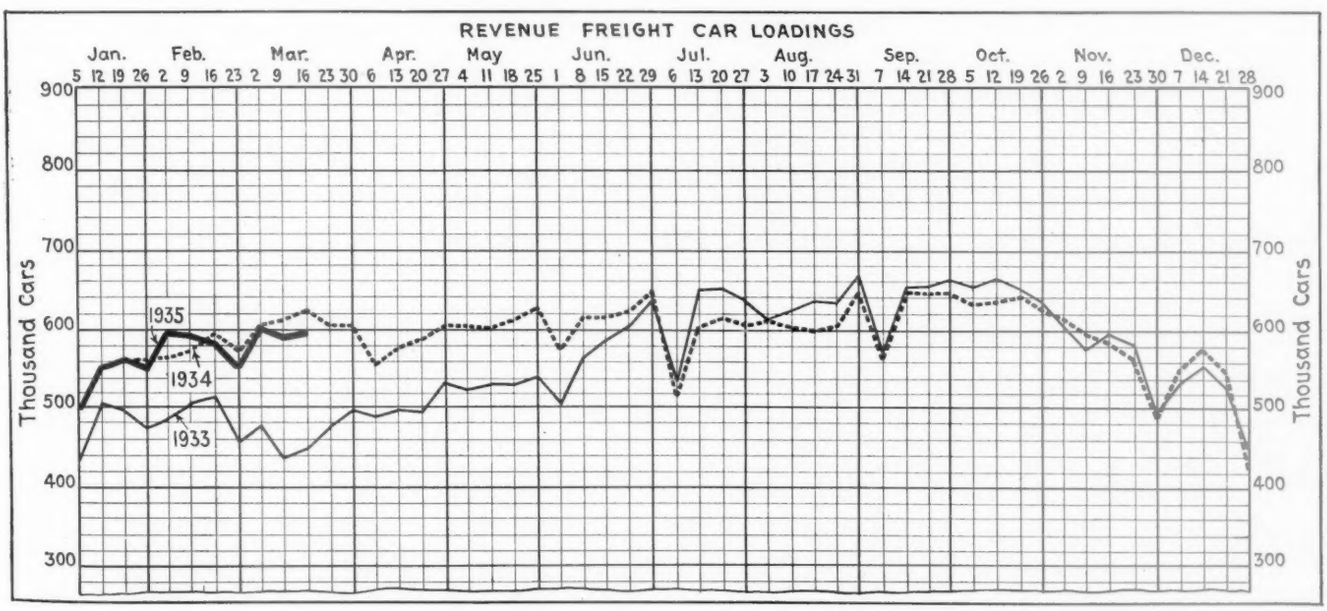
Districts	1935	1934	1933
Eastern	136,353	150,845	103,552
Allegheny	120,349	128,236	84,118
Pocahontas	46,974	48,202	31,767
Southern	94,525	96,633	73,451
Northwestern	69,028	69,719	52,252
Central Western	84,072	84,469	68,647
Southwestern	46,131	49,445	39,850
Total Western Districts	199,231	203,633	160,749
Total All Roads	597,432	627,549	453,637
Commodities			
Grain and Grain Products	25,778	31,976	26,750
Live Stock	11,762	14,030	12,293
Coal	133,533	149,487	89,277
Coke	6,377	8,760	4,349
Forest Products	25,337	25,290	14,530
Ore	3,548	4,010	2,486
Merchandise L.C.L.	160,267	166,193	153,176
Miscellaneous	230,830	227,803	150,776
March 16	597,432	627,549	453,637
March 9	587,270	614,120	441,361
March 2	604,642	605,717	481,208
February 23	552,896	574,908	462,315
February 16	581,981	600,268	517,529
Cumulative Total, 11 Weeks	6,285,416	6,344,942	5,270,980

The freight car surplus for the last half of February averaged 320,103 cars, an increase of 13,163 cars as compared with the number in the first half of the month. The total included 191,613 box cars, 78,337 coal cars, 27,184 stock cars, and 8,174 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended March 16 totaled 43,358 cars, as against 43,973 last year and 41,823 cars for the previous week, according to the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
March 16, 1935	43,358	23,872
March 9, 1935	41,823	24,168
March 2, 1935	44,034	23,555
March 17, 1934	43,973	26,009
Cumulative Totals for Canada:		
March 16, 1935	468,332	248,466
March 17, 1934	449,327	248,443
March 18, 1933	360,683	187,493



Annual Report of Pullman, Inc.

THE annual report of Pullman Inc. and subsidiaries for the fiscal year ending December 31, 1934, reflects the distinct improvement that took place in both its sleeping car and its manufacturing operations during the year. This is shown most directly in the net earnings for the year of $2,957,669 or 76 cents per share, compared with a net loss of $2,672,864 in 1933. Current assets at the end of the year totaled $69,474,997 and current liabilities $10,512,517, as compared with $73,622,472 and $10,668,844, respectively, in 1933.

The outstanding feature of the 1934 operations was the recovery in earning power in both branches of the company's activities, after two years of deficits in each of these divisions. In carrier business, the expansion in the volume of rail passenger travel led to an increase in gross revenues of $5,208,000 or from $39,316,000 in 1933 to $44,524,000 last year, producing net earnings of $597,355 as compared with a loss of $564,426 in 1933. In the manufacturing branch, notwithstanding a continued low volume of new car construction, but aided by a good volume of air-conditioning work and miscellaneous parts sales, a profit of $1,292,591 was realized, as compared with a loss of $3,825,077 in 1933. The consolidated income account as of December 31, 1934, as compared with 1933, follows:

	1934	1933
Earnings:		
From sleeping car business of The Pullman Company, after deducting all expenses incident to operations	$9,808,157	$8,621,543
Less: Charges and allowances for depreciation	9,210,802	9,185,969
	$597,355	*$564,426**
From all manufacturing business, Pullman Railroad, and other miscellaneous properties, after deducting expenses incident to operations	$4,075,030	*$1,046,937**
Less: Charges and allowances for depreciation	2,782,439	2,778,140
	$1,292,591	*$3,825,077**
From security investments, etc., less administration expense of Pullman, Inc.	$1,734,630	$1,716,639
Total earnings from all sources	$3,624,576	*$2,672,864**
Less: Provision for federal income tax	666,907	.....
Balance carried to surplus	$2,957,669	*$2,672,864**

* Figures in italics denote deficit.

David A. Crawford, president, in his letter to stockholders, says in part:

The reaction of the traveling public to the improved rail services available during 1934, particularly in the air-conditioned cars, was very favorable and encourages the hope for continued traffic improvement in 1935. That year will witness a substantial expansion in the number of air-conditioned Pullman cars in operation, further improvements in equipment and refinements in service, and the speeding up of train schedules and restoration of services suspended during the depression, all of which should increase the appeal of the Rail-Pullman travel services and hasten traffic restoration to more normal volume than in recent years, particularly if accompanied by continued improvement in general business activity.

Capital expenditures by the railroads tend to parallel closely the trend of railway net income, and under the compelling influence of the subnormal level of railroad traffic and earnings in the last four years, the carriers have been forced to curtail their equipment replacement and maintenance expenditures to an abnormal degree in order to conserve liquid resources. This has led to a marked increase in bad order equipment as well as in the number of obsolete or worn-out units on line, and is hastening the extinction of the surplus of good order freight cars, which has been reduced by more than half in the last two years and is rapidly dwindling. The situation is aggravated by the fact that equipment retirements have proceeded at about the normal pace during the last four years but replacements have not been sufficient to maintain the stock of equipment at the starting level in each of these years.

Obsolescence of existing equipment has been accelerated during the past few years by the development of new types of freight and passenger cars, with demonstrated possibilities of materially reducing operating costs and of contributing to improvement in service and efficiency. It is, therefore, obvious that considerable modernization of equipment stocks is indicated for the future. Railway management is fully cognizant of this situation and will undoubtedly embark upon an adequate program of improvement when traffic and earning encouragement is present. Financing of equipment purchases has been and still is available on very favorable terms by loans from governmental agencies.

During 1934, there were gross additions of $7,243,497 to the property and equipment account, classified as follows:

Air-conditioning apparatus in cars	$5,423,313
Routine additions and betterments to cars	101,015
44 steel cars rebuilt and revalued	1,232,500
Improvements at laundries, shops, district offices, etc.	135,757
Improvements at manufacturing plants	350,912
	$7,243,497

Four new Pullman sleeping cars, of aluminum-alloy construction, were completed in 1934 for operation in the first new-type motorized sleeping car train built in this country but as that train had not been placed in regular revenue service at the year-end, these cars have not yet been added to the equipment list of the sleeping car subsidiary or included in the above list of capital expenditures on new equipment in 1934. During the year 49 cars were retired; 44 of these were rebuilt and returned to service, leaving a total of 8,473 cars on the equipment list at the close of 1934.

At the close of 1934, there were in service 1,291 air-conditioned Pullman cars and there is now under way a program for equipment of 2,000 additional Pullman-owned cars to be ready for service during the coming summer. With similar progress in equipment of railroad-owned passenger train cars, practically all of the important passenger trains in the country will soon be fully equipped with air-conditioned cars. It is believed that the facilities thus afforded for cool, clean, quiet, as well as safe, travel will add greatly to the appeal of the rail passenger services.

The engineering, manufacturing and operating staffs are working intensively on plans for new types of Pullman sleeping and parlor cars for use in high-speed trains for overnight and transcontinental services. At least three complete trains of that kind, including 11 Pullman-owned sleeping cars will go into operation during 1935, and the manufacturing and sleeping car subsidiaries of your company are prepared to co-operate with the raliroads in the development of such new services and equipment therefor.

The Pullman Company—Traffic and Operating Statistics

Comparative Statement For Years Ended December 31

Item	1930	1931	1932	1933	1934
Cars owned	9,860	9,483	9,279	8,478	8,473
Cars operated	8,559	7,402	5,693	4,944	5,029
Car miles	1,183,668,557	1,025,164,501	799,484,608	710,747,267	737,167,857
Revenue passengers:					
Berth	18,498,844	14,583,183	10,185,444	9,248,461	10,258,642
Seat	10,861,342	8,401,738	5,564,063	4,468,077	4,846,707
Total	29,360,186	22,984,921	15,749,507	13,716,538	15,105,349
Revenue passenger miles	12,515,414,775	9,891,910,222	6,757,760,858	6,141,986,577	6,891,002,293
Revenue from cars	$77,666,074	$63,683,507	$44,196,043	$39,316,239	$44,523,817
Average per car	$9,074.31	$8,603.44	$7,763.50	$7,952.31	$8,853.77
Expenses	$72,729,214	$60,773,171	$45,416,077	$39,880,665	$44,124,174
Average per car	$8,497.40	$8,210.37	$7,977.53	$8,066.48	$8,774.29†
Net earnings from cars	$4,936,860‡	$2,910,336‡	*$1,220,034**	*$564,426**	$399,643‡
Traffic averages:					
Average revenue per passenger	$2.65	$2.77	$2.81	$2.87	$2.95
Average net earning per passenger	$0.17	$0.13	*$0.08**	*$0.04**	$0.03
Average net earnings per car per day	$1.58	$1.08	*$0.59**	*$0.31**	$0.22
Average mileage per car operated	138,297	138,496	140,438	143,760	146,589
Average journey per passenger (miles)	426	430	429	448	456
Average miles per car per day	379	379	384	394	402
Average loading per car (passenger)	10.57	9.65	8.45	8.64	9.35

* Figures in italics denote loss.
† Includes Pullman proportion of expense of operation of air conditioning equipment.
‡ After provision for Federal Income Tax.

Investigation of Railroad Financing Proposed in Senate

Committee on interstate commerce, after hearings, is expected to report Wheeler resolution

WASHINGTON, D. C.

A PRELIMINARY hearing as to whether the Senate committee on interstate commerce shall recommend adoption of the resolution introduced by Senator Wheeler proposing a comprehensive investigation of railroad financing, with particular reference to "banker control," has been held before the committee during the past week and the committee was expected to decide the question in executive session on Friday by making a favorable report on the resolution. At the hearing on Wednesday Co-ordinator Eastman favored its passage, saying that he thought the committee, with the help of the commission, could explore the situation and develop facts to better advantage than the commission could alone and that he hoped the investigation could be so conducted that the "good side as well as the bad side" would be developed. Senator Wheeler said that if the investigation is ordered it will be deferred until Congress adjourns and will not interfere with the consideration of the Eastman transportation program.

The testimony has consisted mainly of charges of alleged financial mismanagement and speculation with railroad funds in connection with the affairs of the Missouri Pacific and the St. Louis-San Francisco made by Charles A. Beard, chairman of an independent committee of Missouri-Pacific bondholders, Maxwell Brandwen, counsel for the committee, and J. L. Kraus, counsel for a group of Frisco bondholders, followed by comments by Commissioner Charles D. Mahaffie of the Interstate Commerce Commission and Chairman Jesse H. Jones of the Reconstruction Finance Corporation. The charges were based largely on facts already brought out in investigations by the commission and in proceedings in the courts having jurisdiction over the trusteeships of the two properties which the first three witnesses asked that the Senate committee investigate further, saying that the government agencies were lacking in power to go into the records of bankers and brokers for proof of some of the inferences which they drew from the facts already developed.

Commissioner Mahaffie and Chairman Jones declined to agree that the government agencies were as uninformed as the witnesses had indicated, but they indicated that they would be inclined to favor legislation prohibiting railroads from acquiring securities of others, without commission approval. Commissioner Mahaffie said the commission had recommended such legislation as long ago as 1913. He said that so far as operations by railroads are concerned the commission can get any information it wants but that it has no mandatory power to compel the disclosure of affairs of bankers and individuals not officers of railroads. Chairman Jones expressed the opinion that the R.F.C. is in a position to get any information it desires before making a loan to a railroad because of its power to withhold a loan. Commissioner Mahaffie said it was rather difficult to prohibit extravagant payments which a railroad has legal authority to make or to "correct much in a financial way after the money is lost."

Asked if he thought it necessary to conduct an investigation of the affairs of all railroads he said that would be a matter of policy but that he would doubt if, taking the railroads as a whole, the character of practices charged was much indulged in.

Proposed Loan to Missouri Pacific

Much of the testimony seemed intended to prevent a large loan being made to the Missouri Pacific by the R.F.C. in connection with a reorganization of the property which would continue the present control and Mr. Brandwen told the committee that the Van Sweringens were asking a loan of $75,000,000. Mr. Jones said that no such definite figure had been suggested and that as yet no definite reorganization plan had been discussed with him by the Van Sweringens, but he said that if the corporation goes into such a plan it intends to see that it is such as to protect all classes of creditors and afford a clean new first mortgage for any new money to be advanced as well as for the loan already made to the Missouri Pacific, as well as one which would be a good investment.

Mr. Jones said the railroads are controlled almost entirely by the banks and that "that is rather natural," but he thought such control was not always in the interest of the railroads and that a "very good purpose might be served" by an investigation as to the extent of such control.

Talk of Criminal Prosecution

The charges made by the bondholders' representatives were such as to cause Senators Wheeler and Couzens to talk of criminal prosecution. The specific statements were confined to the two railroad systems, although the witnesses indicated a belief that a thorough inquiry would disclose similar affairs in other roads. Dr. Beard, as reported briefly last week, had outlined several examples in which he said that bankers and directors had speculated with the funds of the companies without proper authorization or recording of the transactions and had urged the proposed investigation "with a view to the elimination of men who have hertofore used their control over the American railroads in a manner dangerous to investors and the country at large." Messrs. Brandwen and Kraus went more into detail regarding the transactions complained of. A more temperate explanation of the same transactions was offered by Messrs. Mahaffie and Jones, indicating that the general collapse of earnings and values after 1929 were important factors.

Charges Made by Bondholders' Representatives

Mr. Brandwen told the committee that, by order of O. P. Van Sweringen, some $3,000,000 of Missouri Pacific money had been used, at a time when it was needed for interest payments, for the purchase of Missouri Pacific stock, to bolster up the price of similar stock held by the Alleghany Corporation, and that after the price fell it was concealed as an advance to a sub-

sidiary corporation, being revealed in a recent report made by Price, Waterhouse & Co., to the trustees. He also said that the Van Sweringen interests in 1929 had bought terminal property at Kansas City through a company called Terminal Shares, Inc., at a cost of some $19,000,000 and in December, 1930, had "unloaded" it on the Missouri Pacific at cost plus carrying charges, although the value of the property had fallen. Counsel for the R.F.C. had taken the matter to court, charging fraud, he said, and it had been referred to a special master to determine whether the trustees should be bound by a contract to purchase the property, on which a part payment had been made. The special master had found no fraud in the transaction but had reported that the price should be reduced to about $14,000,000. Mr. Brandwen also said that the Vaness Company had been used to collect "service charges" from the Missouri Pacific although the I.C.C. and the R.F.C. had been unable to find out the exact amount of the charges or why they were paid.

Asked if these matters had been presented to the I.C.C., he said they had, by his firm, and possibly by others. He said that O. P. Van Sweringen had been in Washington recently seeking a loan from the R.F.C. and that he had just learned that a plan had been submitted contemplating a loan of $75,000,000, in addition to the $23,000,000 already loaned to the Missouri Pacific, under which the Van Sweringens would still have an opportunity to deal with the property. "Instead of being given a loan they ought to be put in jail, oughtn't they?" said Senator Couzens, and later in the day he was quoted as saying that if Mr. Jones has under consideration any plans with the Van Sweringens "he too ought to be put in jail."

Senator Wheeler said it seemed to him that the I.C.C. ought to go as far as it could and that "in these circumstances this committee should go into these matters to determine also whether there should be criminal prosecution of the people who have perpetrated these frauds. The only way Congress can get this information is to have it brought out by this committee." When Mr. Brandwen said the terminal property had been purchased from packing companies Senator Couzens asked if it had ever been suggested that this was in the nature of a rebate to the packing companies. Mr. Brandwen said he thought that a "probable explanation but could only indulge in conjecture as to how much would be revealed by a real investigation."

The witness told the committee that the Van Sweringens and the bankers are trying to use government funds to perpetuate their control over this "railroad empire" and that he thought the Van Sweringens personally did not have a penny in the Missouri Pacific system but are "completely in hock to a banking syndicate headed by J. P. Morgan & Co."

Later in the day Mr. Jones told newspaper men that O. P. Van Sweringen had been in conference with him as to plans for reorganizing the road and that he understood an issue of $175,000,000 of new first mortgage bonds was proposed and that some new money was desired, part from the R.F.C. and part from other sources, but that there had been nothing like an application.

Frisco Also Considered

J. L. Kraus, representing Frisco bondholders, discussed the purchases of Rock Island and Gulf, Mobile & Northern stock for the Frisco by Speyer & Co., which he said represented a loss to the road and a profit for the bankers. The G. M. & N. transaction had been the subject of an investigation and report by the Interstate Commerce Commission, which had criticized the directors of the Frisco for ratifying a purchase made over a year before on the authority of E. N. Brown, chairman of the board. Mr. Kraus, however, indicated that if the price had not gone down it would have been treated as a purchase by the bankers for their own account.

Mr. Kraus also put into the record copy of a letter written in 1927 by J. M. Kurn, president of the Frisco, to Chairman Brown, saying the Frisco was being "crucified" by the prospect of a consolidation with the Rock Island because connecting lines in competition with the Rock Island were diverting their traffic and urging either that the consolidation be effected or that there be a definite financial separation. He said Mr. Kurn had testified recently in court proceedings in St. Louis that some of the stock purchases were made at a time when the New York office was writing to him telling him to cut down expenses drastically to show some earnings for the stock and when maintenance of equipment was being "slaughtered" and many employees were being laid off.

Commissioner Mahaffie, testifying before the committee at its request on March 26, pointed out that the commission would have no jurisdiction over the terminal property transaction unless the Missouri Pacific applied to it for authority to acquire control. It found out about it through the report of cash disbursements on the contract and "developed pretty well the facts," but in view of the court decision in the case in which it had ordered the Pennsylvania and the Pennsylvania Company to divest themselves of stock of the Wabash and Lehigh Valley that the acquisition was for "investment," it would have been difficult to prevent the purchase of the terminal property by the Missouri Pacific even if it were made outright.

The purchase of the Gulf Mobile & Northern stock came to the attention of the commission shortly after it was made, he said, and the commission had criticized the directors but at that time it was not illegal for one carrier to buy stock representing less than control of another and the only thing the commission could do was to make public what seemed to be some "peculiar features" of the transaction. Also, the purchase of Rock Island stock was less than numerical control, although the commission's power in such cases has been increased by the law of June, 1933. When Senator Couzens asked why the commission had not asked Congress for more authority "all these years" Mr. Mahaffie replied that it had asked for authority over holding companies in 1919 and had got it in 1933.

Senator Wagner asked if the commission was sufficiently in touch to know when a railroad reduced its maintenance and the number of employees in order to pay dividends. The Commissioner replied that it would not know currently but receives monthly reports of maintenance expenditures.

Senator Wheeler remarked that apparently some railroads, through bankers, have speculated and lost large sums and yet the I.C.C. seems helpless to correct the situation, and he asked if laws ought not to be passed to prevent it. Mr. Mahaffie said that so far as the abuses mentioned are concerned, if they can be prevented they ought to be. He said the 1933 law had corrected the situation to some extent but that he was not sure that extravagant expenditures can be prevented by law.

Senator Barkley asked "how about a law preventing railroads from investing in securities of other roads?" Mr. Mahaffie said he thought that would be entirely feasible and said the commission had made such a recommendation in 1913. When someone made a remark about the "wrecking" of the Frisco he said its earnings had decreased from about $92,000,000 to about $40,000,000

and that "that is what sunk the railroad; these other things are comparatively trivial."

Mr. Mahaffie said the principal difficulty about reorganizing a railroad results from the demands of the old security holders to retain an interest in the property, but that now the theory is being discussed of reorganizing on the basis of earning power, and that is still to be thrashed out. He thought the earning power a better primary test than the value of the property and that it would be necessary to reorganize many railroads on a basis on which a company would carry itself and finance itself. He expressed the opinion that "we cannot proceed very far with reorganizations that will stand up under Section 77 of the bankruptcy law. Replying to a question by Senator Couzens as to whether he considered the attempts of the Van Sweringens to build up "this vast railroad empire with two billion dollars of securities" are in the public interest, Commissioner Mahaffie said he would have no objection from the standpoint of size and that "we need have no fear of two-billion-dollar railroad systems, because we have them now and they are among the best, such as the New York Central, the Pennsylvania and the Southern Pacific," but that it ought to be done directly and in the open. Probably one of the worst things that has happened since 1920, he said, has been the increase in debt and the depletion of cash incident to buying other properties. His thought was that properties ought to be put together by exchange of securities instead of by a buying campaign.

Mr. Jones said the R. F. C. has a tentative commitment to the Colorado & Southern and two or three applications for loans and that there has been "a great deal of talk about loans" involving not a great deal of money from the R. F. C. There have been discussed from time to time plans for reorganizing the Denver & Rio Grande, Missouri Pacific and Western Pacific. It has given a great deal of study to the Missouri Pacific situation and believes the present loan to be "pretty well secured." Mr. Jones said he favored reorganization by issuing securities on the basis of interest payable if earned and perhaps at a low rate rather than a reduction of par value. He would also give the bondholders voting power in such circumstances.

When Senator Bone asked if he wanted to continue to deal with people his counsel had accused of fraud, Mr. Jones said he did not think his counsel had sustained the charge, because the special master had found nothing wrong with the terminal property transaction. He had even found, Mr. Jones said, that the property is now worth $14,000,000, which he said "is pretty good if it was worth $20,000,000 at the time it was bought." He said he thought the deal was probably ill-advised but he had been trying to check on it with other roads and they said it was a valuable property. "I wouldn't condemn a fellow for that alone," he said. "If we go into a reorganization plan with new money we are going to think it will be such as to protect all classes of security holders and I think we can do that and get representation on the board for every class of security holders, although the control may not be in the hands of the present management."

Eastman Favors Investigation

Co-ordinator Eastman appeared before the committee on March 27 and said he favored the passage of the resolution, on the ground that the investigation would tend to "clear the air" and on the whole have a wholesome effect. He said the resolution was in broad terms and "might well cover a fair cross-section of the railroads so that the public could learn the good side as well as the bad and not just get an impression of the bad spots." Mr. Eastman said he had directed the accountants of the commission last summer to make an investigation of the service charges paid by the railroads to the Vaness Company and had found that such charges from 1923 to March, 1934, had amounted to $875,688. Of this the Missouri Pacific had paid $178,498. He had written the presidents of the railroads for a full explanation of the reasons for the payments and had received the explanation that the organization is engaged in statistical, legal, and research work, especially in relation to consolidation and matters of that kind, and that money could be saved in having it done in that way. He said the trustees of the Missouri Pacific had made an arrangement to reduce the amount paid to $500 a month plus telephone charges. The commission accountants have been instructed to make a further investigation of the books of the Vaness Company at Cleveland.

Mr. Eastman reminded the committee that the commission for several years had called attention to the acquisitions of railroads by holding companies and had brought about several investigations of the activities of the Van Sweringen and Pennsylvania companies, but that Congress had not given the commission authority over holding companies until 1933. He also reminded the committee that during the time the railroads were making so many expenditures for the acquisition of other properties the commission's accounting forces were devoting most of their time to checks of the income accounts of the railroads in connection with the standard return, the six months guaranty in 1920 and the recapture clause, and that about the time the recapture clause was repealed and they hoped to be able to resume their policing of railroad accounts which had been neglected Congress had cut in two the commission's appropriation for that purpose. He said, however, that the examination of accounts by the commission's accountants was likely to be technical and for the purpose of ascertaining whether the accounts are properly kept, and that it might be a good thing if the commission could have one or two men "with a nose for looking for financial transactions that deserve investigation."

Mr. Eastman was questioned at some length as to the relations between railroads and supply companies and as to whether the commission should not have power to fix prices, etc. When Senator Shipstead said something about the railroads having been "milked," Mr. Eastman replied that "even without the adverse effects of some of the practices mentioned, and "even if they have been milked," the railroads "would still be flat on their backs at this time, and so far as the supply companies are concerned they are, if anything, in worse condition than the railroads" and that the principal reason is the loss of business. He said there are many phases of railroad operation over which the commission has no jurisdiction, including the prices paid, salaries paid, contracts entered into, etc., which he said are details of management. "The question is," he said, "if such a situation exists, and I do not believe it exists to any great extent, that the government has got to exercise control over such matters—if the only protection you have is government supervision, of what use is the system of private enterprise?"

John Phillip Hill, general counsel for the National Association of Transportation and Communication Security Owners, which he said was organized during the recent hearings on the general rate advance case to represent mainly the smaller owners of railroad bonds, spoke in favor of the resolution, saying he thought it necessary as a part of the general program of transportation legislation "which is the most important thing that has happened to transportation since the United States was organized."

Odds and Ends . . .

New Use for Business Car

Members of a fishing club at Mokane, Mo., recently purchased an outmoded business car from the Missouri-Kansas-Texas, and the veteran of the rails now does duty as a clubhouse at the side of a lake, miles removed from the rails.

After Death

Transcontinental travelers on the Northern Pacific travel over a stretch of road that no living man has ever traveled, and, we have reason to believe, a road that is barred to those who have passed beyond. The stretch in question is from Hell Gate to Paradise. In this case, however, both are towns in Montana.

A Ripping Idea

At a recent conference of claim agents of Chicago lines, it was decided that there had been a terrific increase in claims for tears in pants belonging to a man named Harry Graham. This comparison of notes brought about Mr. Graham's arrest, and closed a successful career as a pants ripper, or if you prefer, trousers tearer. Harry really tore his pants on a train about six months ago, and was paid for it. After that he took to riding suburban trains, ripping the same tear each time and collecting from $7.50 to $12.65.

B. & O. Supplied News For Lincoln

Two telegrams recently discovered in the files of the Baltimore & Ohio, show how Abraham Lincoln, Civil War president, frequently depended on outside sources to get information concerning the progress of the war. Both the telegrams were sent by Lincoln himself to John W. Garrett, president of the B. & O., and sought information concerning the moves of the Confederate forces on Washington during July, 1864. The first was sent on the fifth day of the month, and read:

"You say telegraphic communications reestablished with Sandy Hook. Well what does Sandy Hook say about operations of enemy—of Sigel doing today."

Sigel was General Franz Sigel, who was stationed with his troops on Maryland Heights, overlooking the junction of the Potomac and the Shenandoah rivers. Lincoln had been advised by General Lew Wallace (author of Ben Hur) that the Confederate general Jubal Early had invaded Maryland with 20,000 troops and was marching towards Baltimore. Sandy Hook was a railroad station one mile east of Harper's Ferry. There is no indication of the answer sent to Lincoln, although there is a pencil notation on the face of the telegram signed by the master of transportation of the B. & O., Wm. Prescott Smith, "I have asked operator at Hook to tell us results."

The second of the two telegrams was sent by Lincoln to Garrett at 5:21 p. m. July 9, the day the battle of the Monocacy was fought. It read:

"What have you heard about a battle at Monocacy today? We have nothing about it here except what you say."

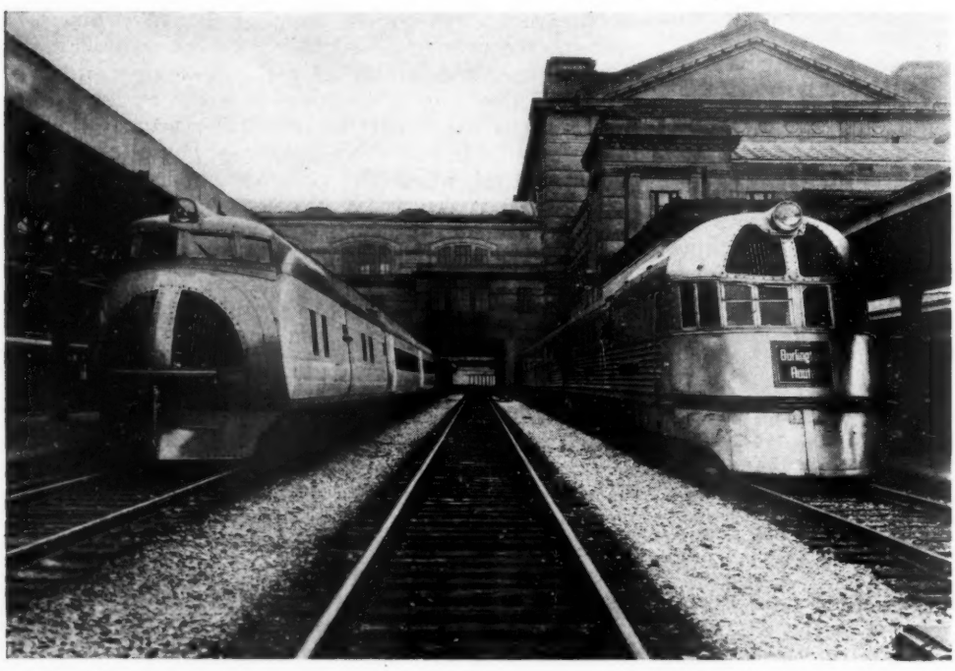
Wallace had thrown a small force of men to oppose the Confederate forces at the Monocacy river, 19 miles east of Harper's Ferry. He was defeated, but the delay of 30 hours made possible the placing of more Federal troops to oppose the enemy, and Grant later said that Wallace's defense was one of the real factors in saving Washington.

Queer Named Railway Jobs in England

The railway porter, driver and guard are familiar English names to most Americans, but few people have ever heard of the host of other railway employees in occupations bearing curious names. At Swindon, the Great Western Railway Company's locomotive and carriage works, for example, there are strippers, punchers and knockers who have no connection whatsoever with gangsters but are respectfully and respectively engaged in dismantling machinery, punching rivet holes and in removing castings from moulding boxes. The boshman is no alien. His job is removing accumulated grease and dust from parts of vehicles due for repairs by boiling them in a tank of acid known as the "bosh." Neither is there anything sinister in the job performed by drag-out boys, holders-up, pull-up boys or roughers, for their jobs are dragging finished bars of iron from the rolling mill rolls to the benches to be straightened; holding up the heads of red-hot rivets to be beaten home by the riveter; pulling up the lever which opens the furnace doors to allow the white-hot bars to be removed for the roughers to place into the rolls.

The saw doctor is an expert skilled in the task of keeping keen edges on tools; the gland packer has no interest in Darwin's theories but in preventing the escape of steam or water from vulnerable parts of the engine; the hair carder cleans and prepares the horse hair used in upholstery ready for the trimmer who is the upholsteryman. The clothier, dipper, dresser and hooker-on have no connection with fashions or dyeing, for their work entails clothing the engine boilers in heat-proof plaster, dipping wheels in tar, dressing rough castings with hammer, chisel and grindstone, and hooking-on articles to be lifted by overhead cranes. There are a host of other peculiar named jobs including the ding separator who separates, by means of a magnetic process, the ferrous from the non-ferrous metal turnings and sweepings from the machine shops.

* * * *



Will This Sight, Unique at Present, Become Commonplace? The Kansas City Union Station Is Now the Only Place in America Where Two Streamlined Trains Meet in Regular Service

NEWS

Legislation on Transport May Be Postponed

Senate leader says that prospects for enactment this year cannot be determined now

Legislation to provide for regulation by a single government agency of all forms of transportation was included in a list of subjects on which the administration hopes for action in Congress at this session discussed with the President on March 25 by Senator Joseph T. Robinson, majority leader of the Senate, just before the President left for a vacation trip, but Senator Robinson said afterward that there was no "hard and fast program" and that "it cannot be determined now" whether the transportation program can be put through this year. Apparently the President has decided to postpone until a more favorable opportunity his promised message to Congress on the subject of transportation legislation, possibly until after Congressional committees have acted on some of the bills recommended by Co-ordinator Eastman.

Chairman Wheeler, of the Senate committee on interstate commerce, announced on March 26 that his committee would hold executive sessions to consider reports on various measures in the following order: The resolution providing for an investigation of railroad financing; the bill for the regulation of the coal industry; the bill for the regulation of bus and truck transportation; and the bill for the regulation of water transportation. He has also expressed the opinion that bills of some kind dealing with water and highway carrier regulation would be reported. The committee has spent a week hearing preliminary testimony on the question as to whether the committee should hold an investigation of railroad financing, but during that time the testimony taken at the earlier hearings is being printed so that it will be available to members of the committee not present at the hearing.

A hearing on another of the bills recommended by Co-ordinator Eastman, S.1633, was held before a sub-committee of the committee on interstate commerce on March 26. The purpose of the bill is to broaden paragraph 1 of section 3 of the interstate commerce act by making it unlawful to give undue or unreasonable preference or advantage to any ports or gateways in addition to any person, company, firm, corporation, association, or locality. For many years ports were regarded as "localities" within the meaning of this session until the Supreme Court of the United States on May 29, 1933, held that a port is not a locality within the meaning of the provisions so far as concerns export and import traffic which merely passes through a port. Commissioner Frank McManamy of the Interstate Commerce Commission appeared in support of the bill, saying the commission had twice approved recommendations of the federal co-ordinator of transportation for an amendment which would include gateways as well as ports. "In our opinion," he said, "it would be still better to include also port districts and transit points, as proposed in S. 1813." The latter bill was introduced by Senators Moore and Barbour. Senator Moore is chairman of the sub-committee. Testimony was also given on the bill by representatives of various ports and by Co-ordinator Eastman.

In the House a sub-committee of the committee on interstate commerce is considering the bus and truck bill, but the full committee has been holding daily hearings on the holding company bill.

The Senate committee has appointed a sub-committee headed by Senator Lonergan, of Connecticut, to consider the bills introduced at the request of the Railway Labor Executives' Association and Chairman Wheeler has announced that the committee will take up the bill recommended by Co-ordinator Eastman to amend the bankruptcy law relating to railroad reorganizations after it has disposed of the highway and waterway bills.

Passenger Fare Hearings Concluded

Hearings in connection with the Interstate Commerce Commission's investigation of railroad passenger fares were concluded on March 25 with some rebuttal testimony on behalf of the railroads, some of which applied to conclusions expressed in the passenger traffic report issued by the Co-ordinator's Section of Transportation Service. Briefs are to be filed by May 15 and a proposed report will be issued.

Labor Leaders Call On President

A delegation representing the railroad labor organizations, headed by George M. Harrison, chairman of the Railway Labor Executives' Association, called on President Roosevelt at the White House on March 21 to discuss proposed transportation legislation. It was stated they had discussed the bills introduced in Congress at their request, the program of legislation recommended by Co-ordinator Eastman providing for regulation of highway and waterway transportation, and ways of protecting or increasing railway employment. Earlier in the week they had conferred with Donald R. Richberg, executive director of the National Emergency Council.

Steam-Train Speed Record on Test Run in Britain

Regular London & North Eastern locomotive, with 313-ton train, attains 108 m.p.h.

What is called "the highest speed ever recorded for a steam-driven train"—108 m.p.h.—was attained March 5 on the London & North Eastern of Great Britain during the course of test runs from London to Newcastle and return. Details of the runs were set forth in a recent press release from the Associated British Railways, Inc., New York, which also says that 240 mi. of the round-trip were covered at an average speed of over 80 m.p.h. and that the train set up another record when it traveled 12 mi. at average speed of more than 100 m.p.h.

The train, weighing 213 tons and consisting of three first-class coaches, a dining car, a brake van and a dynamometer car, was hauled by the Pacific-type locomotive which was built in 1928 and had already run 392,853 mi. on its ordinary passenger train assignments; it was not specially prepared for this run. The train was scheduled to complete the 268-mi. London-Newcastle run in four hours and, despite a delay of seven minutes, it arrived at Newcastle three minutes ahead of schedule, thus making the trip at an average speed of 67.05 m.p.h.

The run was a part of a comprehensive study which the London & North Eastern has been making to test its previously-developed theory which holds that under conditions prevailing in Great Britain "better results can at present be obtained from the use of light units drawn by steam locomotives than by Diesel-engined trains." This study had included close scrutiny of results obtained in Germany from the operation of the Diesel-propelled "Flying Hamburger," which makes the 179-mi. Berlin-Hamburg run at an average speed of over 77 m.p.h. The London & North Eastern felt, however, that it would be difficult to find on its line a stretch of track which contained so few difficult grades and sharp curves in the same distance as are found on the route of the "Flying Hamburger." It therefore submitted to the manufacturer of the German train's engine diagrams and profiles of certain L. N. E. main lines and invited the manufacturer to submit speed schedules which a similar Diesel-propelled train could be expected to achieve operating over such lines. The manufacturer estimated that such a Diesel-propelled train could operate from London to Leeds in 165 min.,

or at an average speed of 67.6 m.p.h. With this estimate in hand the London & North Eastern last November assembled a light steam train which operated over the London-Leeds route in 151 min. in one direction and 157 min. in the other. This experience was the basis for its above-mentioned theory that British line conditions preclude a Diesel-propelled train's bringing any advantages which could not be had with light steam trains; but the road nevertheless launched the March 5 experiment to put the theory to a further test.

The German manufacturer had estimated that a Diesel train should make the 268-mi. London-Newcastle run in 252 min. and the London & North Eastern, as stated above, set up for its steam train a 240 min. schedule, which was actually beaten by three minutes. The fastest regular train in service between London and Newcastle is the "Flying Scotsman," which covers the distance at an average speed of 52 m.p.h. with a train having a capacity for 400 passengers and weighing 350 to 450 tons.

After calling attention to this latter, the account of the test run closes with the following:

"It must not be assumed that the introduction of a high-speed train into the time-tables is a step which can necessarily be taken in the near future. The results of the test must be very carefully considered and compared with those of the Leeds run. The more important factors which have to be studied are: (a) Coal consumption; (b) the effect of high speeds on the permanent way; (c) wear and tear of the locomotive; (d) the possibilities of streamlining; (e) the disturbance involved in the normal time-table.

"A study of these problems must take time, and even if satisfactory results are deduced, the task of fitting high-speed trains into the ordinary time-table will not be an easy one. The special fast train was only about half the normal weight of an ordinary train, and the effect of inserting a unit of reduced capacity into an already crowded time-table requires careful examination. It hardly seems feasible to introduce more than a very limited number of these units, as their general adoption would make it necessary to double the number of express trains.

"The points which have been mentioned are either technical or operating, and there remains the all-important one of the commercial justification for running trains at high speed at half the normal weight. Supplementary fares will probably be a necessary feature, and consideration must be given to the extent to which accelerated travel will attract additional traffic."

Spring Meeting of N.I.T. League

The National Industrial Traffic League, because of the urgency of the present transportation situation, will hold a spring meeting at the Gibson Hotel, Cincinnati, Ohio, on April 4, this being the first spring meeting in several years. The chief business will be to consider a special report of the league's legislative committee in which an attempt will be made to collate the league's position, as formulated in previous meetings, on the numerous legislative proposals affecting transportation that are now before Congress. A number of other committee reports which are ready for action will also be considered. Some of the Eastman proposals coincide closely with recommendations made by the league in past years, while others are along lines to which the league has hitherto expressed opposition; while at the same time there are some upon which the league has not as yet expressed its position, and some upon which it is thought wise by its officers that its position shall be made clear at the present time.

Railway Students' Open House

The College of Engineering of the University of Illinois, Champaign, Ill., will hold open house on April 13. The students in the railway department are making special efforts to arrange an attractive exhibit and presentation, which will include the continuous operation of the locomotive testing plant and the brake shoe laboratory.

Railway and Locomotive Historical Society—N. Y. Chapter Meeting

Otto Kuhler, artist and design engineer, will speak on "Art Again Invades the Railroads" at the next meeting of the New York Chapter, Railway and Locomotive Historical Society, which will be held on April 12 at 7:30 p. m. in room 1101 of the Engineering Societies' building, 29 West Thirty-ninth street, New York.

Chicago Traffic Club Elects Officers

At an election on March 19, the following officers of the Traffic Club of Chicago were elected for the ensuing year: President, T. J. Shea, assistant general freight agent of the Great Northern; first vice-president, J. W. Bingham, traffic manager of the Corn Products Refining Company; second vice-president, J. E. Weller, traffic manager of the Pennsylvania; third vice-president, R. W. Campbell, manager of the traffic department of the Butler Paper Corporation; secretary, H. E. MacNiven, life insurance underwriter; and treasurer, J. H. Howard, manager of the Western Weighing & Inspection Bureau.

New "Flying Yankee" in Service April 1

The new streamlined "Flying Yankee," which will be placed in regular service on April 1 by the Boston & Maine and the Maine Central, will be christened on that day by Miss Norma Finnigan of Bangor, Me., 18-year-old granddaughter of Irving H. Turner, veteran Maine Central engineer, who for many years handled the throttle of the steam-propelled "Flying Yankee" on the Portland-Bangor section of its run over the Maine Central. The christening will take place at Portland Union station and Miss Finnigan will fly from Bangor to ceremonies on one of the planes of the Boston-Maine Airways.

"Full Crew" and Train Limit Bills Postponed in Pennsylvania

Consideration of "full crew" and train limit bills, which were recently passed by the Pennsylvania house of representatives, has been postponed indefinitely by the judiciary special committee of the Pennsylvania state senate. This committee, to which the bills were referred after their passage by the house, held a hearing March 19 when several executives of railways operating in Pennsylvania appeared in opposition, as was reported in the *Railway Age* of March 23. The New York state senate has as yet taken no action on the "full crew" bill which has there been reported out of committee.

Equipment in Order

Class I railroads on March 1 had 514 new freight cars on order, according to reports received by the Association of American Railroads. On the same day last year, 5019 new freight cars were on order and on the same date two years ago, there were 1974. The railroads on March 1 also had 5 new steam locomotives and 70 new electric locomotives on order. New steam locomotives on order on March 1, 1934, totaled 21, and on the same date in 1933, there were 3. New electric locomotives on order on March 1, 1934 totaled 90. No reports are available as to the number on order on March 1, 1933. In the first two months of 1935, the railroads installed 428 new freight cars. In the same period last year 25 new cars were placed in service and for the same period two years ago, the total number installed was 476. Seven new steam locomotives and 20 new electric locomotives were placed in service in the first two months this year. The railroads in the first two months of 1934 installed no new steam locomotives but four new electric locomotives.

Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

Cleveland Chamber of Commerce Opposes Government Ownership

Believing that government ownership of railroads would be "a national calamity of major proportions" because "no more expensive experiment, both as to first cost and annual operating losses, could be conceived," the Cleveland (Ohio) Chamber of Commerce has adopted a policy of active opposition to any trend toward federal control of the rail carriers. The Chamber's action, its announcement says, "is based almost entirely upon a consideration of the interests of the users of transportation service and the general public. Little weight was given to the rights or interests of security holders, managements or railroad labor, though each of these has a vital stake in the question. In the long run, their special interests are undoubtedly identical with those of the nation at large, but, even if that were not the case, the public interest should control."

Club Meetings

The Northwest Car Men's Association (St. Paul) will hold its next meeting on Monday evening, April 1, at the Y. M. C. A. Building, Minnesota Transfer. The speaker will be F. M. Metcalfe, superintendent of safety of the Northern Pacific.

The Canadian Railway Club will hold its next meeting on Monday evening, April 8, at the Windsor Hotel, Montreal. J. R. Macken, supervisor of costs, M. P.

Continued on next left-hand page

MEASURE RAILROAD PERFORMANCE

in Net Tons per Mile of Road per Day

Full capacity trains at passenger train speeds is the keynote of modern freight train movement.

It means increased net tons per mile of road per day — increased usefulness from every factor of the entire transportation plant.

Super-Power-Steam-Locomotives alone can do this with maximum efficiency and economy.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, Incorporated, LIMA, OHIO

& R. S., Canadian Pacific, will speak on economic performance of locomotives and cars under the post-war adverse conditions.

The Car Foremen's Association of Chicago will hold its next meeting at the LaSalle Hotel, Chicago, on Monday evening, April 8. Leroy Kramer, president of the Union Refrigerator Company, will speak on operation of private freight cars.

The Western Railway Club will hold its next meeting at Hotel Sherman, Chicago, on Monday evening, April 15. W. G. Black, vice-president of the Chesapeake & Ohio, will speak on efficient motive power.

Russia Relinquishes Interest in Chinese Eastern

Final agreements for the sale of the Chinese Eastern Railway by the U.S.S.R. (Russia) to Manchukuo were signed in Tokyo, Japan, last week. The Chinese Eastern will henceforth be known as the North Manchurian Railway and will be operated by the board which now directs the South Manchurian Railway.

Under the terms of sale, as set forth in recent press releases from Tokyo, the government of Manchukuo will pay to the U.S.S.R. 140,000,000 yen ($39,200,000) for the railway, in addition to 30,000,000 yen ($8,400,000) for retirement allowances to the road's Soviet employees. One-third of the payment will be made in cash and two-thirds in goods; half of the cash to be paid at the time of the formal signing of the agreement and the remainder of the payments within three years. The retirement allowances to Soviet employees are payable in four equal installments within two years.

The Chinese Eastern is a 1,500-mile railroad, including branch lines. It traverses Manchuria from the northwest to a Pacific coast terminus at Vladivostock and has been one of the world's most famous railroad systems. Its construction was launched in 1896 when Russia obtained permission from China to shorten its Trans-Siberian line by thus crossing Manchuria; with the Trans-Siberian the C. E. R. has, since its completion in 1905, provided the most direct rail route from Europe to the Pacific. In 1898 an extension southward from Harbin to Port Arthur was projected, but this branch, except the Harbin-Changchun section, was ceded to Japan after the Russo-Japanese War, and became the South Manchurian Railway. Prior to the creation of Manchukuo, the C. E. R. was operated under a joint arrangement between Russia and China, of which latter Manchuria was then a part. Press dispatches from Shanghai stated in this latter connection that the Chinese government had protested the sale, holding that China "is a joint owner of the railroad and regards this transaction as illegal and without binding force. . . . The Chinese government reserves all its rights and interest in the C. E. R."

Work-Relief Resolution Passed by Senate

The joint resolution appropriating $4,800,000,000 to be used by the President for work-relief and direct relief was passed by the Senate on March 23, two months after the original resolution was passed by the House, but with many amendments which required that it be sent to conference. As passed by the Senate the resolution specifies maximum amounts which may be expended for groups of projects, including an item of $800,000,000 for roads and grade crossing elimination, but authorizes the President to exceed the specified amounts by transferring from one group to another. An amendment offered by Senator Hayden, of Arizona, provides that the amounts appropriated for grade crossing elimination, including the separation or protection of grades at crossings, the reconstruction of existing grade crossing structures, and the relocation of highways to eliminate grade crossings, shall be apportioned by the Secretary of Agriculture to the several states, one-half on the basis of population, one-

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled From 145 Monthly Reports of Revenues and Expenses Representing 149 Class I Steam Railways

FOR THE MONTH OF JANUARY, 1935 AND 1934

Item	United States		Eastern District		Southern District		Western District	
	1935	1934	1935	1934	1935	1934	1935	1934
Average number of miles operated	238,220	239,486	59,008	59,170	45,293	45,487	133,919	134,829
Revenues:								
Freight	$211,007,919	$208,785,841	$95,574,091	$92,364,324	$42,410,608	$43,320,428	$73,023,220	$73,101,089
Passenger	30,447,629	27,199,053	18,183,843	16,781,211	4,407,247	3,686,139	7,856,539	6,731,703
Mail	7,596,885	7,645,779	2,898,691	2,970,556	1,378,317	1,356,354	3,319,877	3,318,869
Express	2,962,889	3,048,070	1,015,383	1,177,929	770,144	819,686	1,177,362	1,050,455
All other transportation	6,197,356	5,832,941	3,207,259	3,121,130	599,182	541,269	2,390,915	2,170,542
Incidental	5,364,836	4,944,648	2,968,305	2,758,052	869,915	761,580	1,526,616	1,425,016
Joint facility—Cr.	823,783	745,726	271,007	245,600	156,435	154,127	396,341	345,999
Joint facility—Dr.	188,126	187,540	50,088	49,861	17,138	14,085	120,900	123,594
Railway operating revenues	264,213,171	258,014,518	124,068,491	119,368,941	50,574,710	50,625,498	89,569,970	88,020,079
Expenses:								
Maintenance of way and structures	27,684,659	25,164,083	11,685,816	10,132,667	5,870,644	5,589,766	10,128,199	9,441,650
Maintenance of equipment*	55,210,941	52,695,622	24,739,903	24,331,500	10,666,213	9,796,847	19,804,825	18,567,275
Traffic	7,617,161	7,291,195	2,809,440	2,735,848	1,595,494	1,446,383	3,212,227	3,108,964
Transportation	104,561,404	96,304,518	49,053,483	45,730,208	17,538,527	16,124,649	37,969,394	34,449,661
Miscellaneous operations	2,568,356	2,187,841	1,262,052	1,113,767	356,687	285,049	949,617	789,025
General	*a* 15,490,519	*b* 12,369,680	6,565,905	5,402,569	2,429,924	2,098,501	6,494,690	4,868,610
Transportation for investment—Cr.	161,532	146,716	32,513	41,006	27,139	14,897	101,880	90,813
Railway operating expenses	212,971,508	195,866,223	96,084,086	89,405,553	38,430,350	35,326,298	78,457,072	71,134,372
Net revenue from railway operations	51,241,663	62,148,295	27,984,405	29,963,388	12,144,360	15,299,200	11,112,898	16,885,707
Railway tax accruals	19,868,948	20,635,274	7,932,276	8,211,081	4,238,901	4,251,943	7,697,771	8,172,250
Uncollectible railway revenues	81,423	106,473	35,475	60,588	8,639	20,326	37,309	25,559
Railway operating income	31,291,292	41,406,548	20,016,654	21,691,719	7,896,820	11,026,931	3,377,818	8,687,898
Equipment rents—Dr. balance	6,947,767	7,437,886	3,531,488	3,560,270	283,872	634,953	3,132,407	3,242,663
Joint facility rent—Dr. balance	2,994,969	2,910,386	1,726,798	1,653,680	306,079	329,763	962,092	926,943
Net railway operating income	21,348,556	31,058,276	14,758,368	16,477,769	7,306,869	10,062,215	*d* 716,681	4,518,292
Ratio of expenses to revenues (per cent)	80.61	75.91	77.44	74.90	75.99	69.78	87.59	80.82
Maintenance of equipment before depreciation and retirements	39,082,900	36,765,176	17,760,789	17,334,331	7,467,004	6,770,140	13,855,107	12,660,705
Net railway operating income before depreciation and retirements	37,476,597	46,988,722	21,737,482	23,474,938	10,506,078	13,088,922	5,233,037	10,424,862
* Includes:								
Depreciation	16,056,320	15,645,125	6,952,643	6,838,636	3,174,430	2,931,438	5,929,247	5,875,051
Retirements	71,721	285,321	26,471	158,533	24,779	95,269	20,471	31,519

a Includes accruals on account of pensions, as follows: Under Federal Retirement Act, $2,877,464; under previously existing plan, $2,916,558, but excludes pension accruals held in suspense and not charged to operating expenses.

b Includes accruals on account of pensions, under previously existing plan, $2,901,625.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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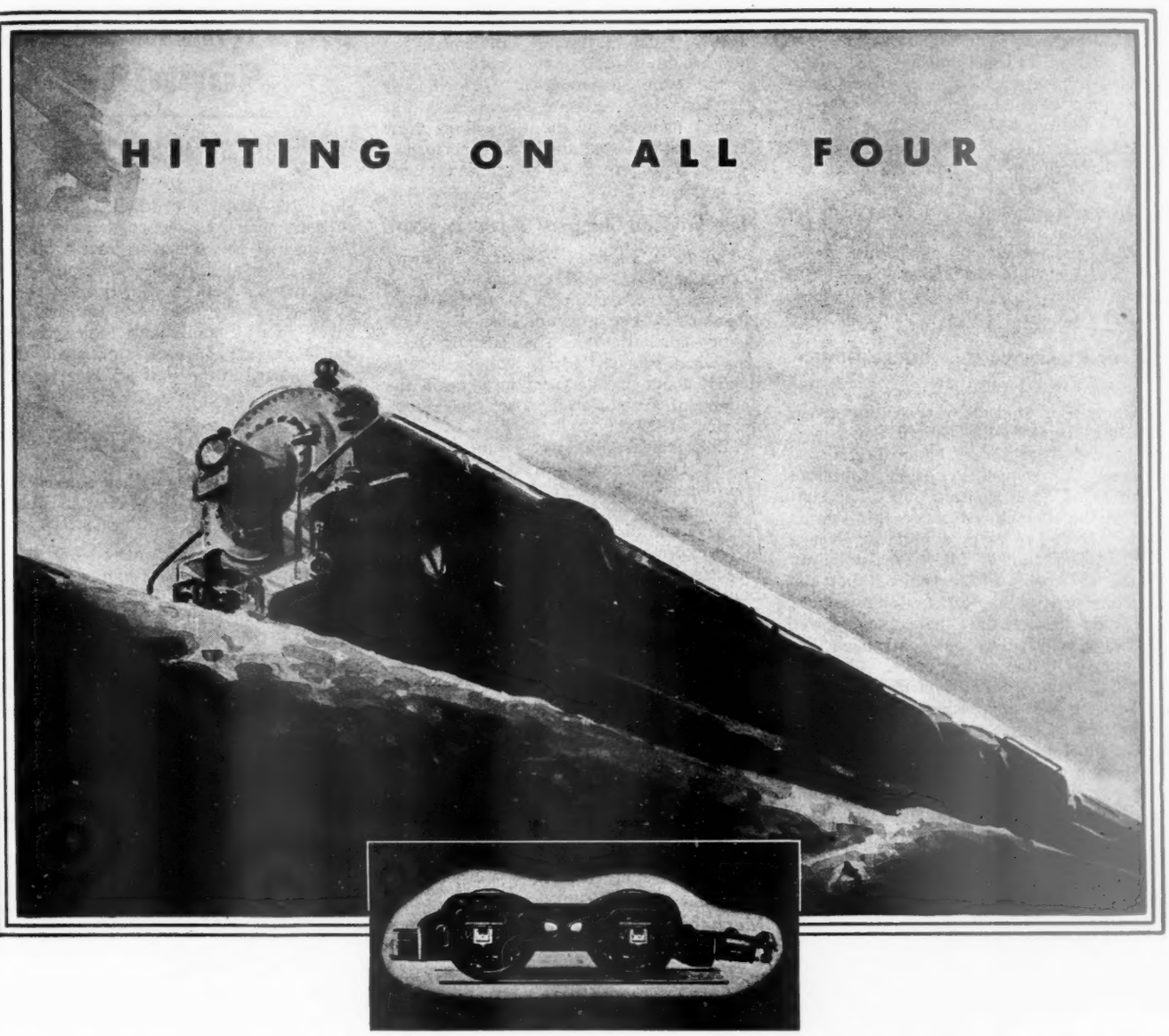
HITTING ON ALL FOUR



GETS THE TRAIN OVER THE HILL!

For all but a small part of the run the two main locomotive cylinders may be ample to haul the train at schedule speed.

With the average train, however, the two main cylinders may start it and get it over the ruling grades—but at the expense of overstressed parts, slipping drivers and coupler and draft gear abuse, because of too much train or not enough power.

Utilization of The Booster adds the power of two more cylinders and the adhesive weight of either the trailer or tender wheels to increase the pull when greater effort is needed.

This avoids overstressed parts in engine and train, materially reduces maintenance costs and increases locomotive mileage between shoppings.

It also improves operation by quicker acceleration, higher average speeds, and fewer detentions, because The Booster is a pinch hitter when and as needed, but otherwise is normally inactive.

Because material and tolerances are just right for the job, genuine Franklin repair parts give maximum service life.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

fourth on the basis of mileage of the federal-aid highway system, and one-fourth on the basis of railroad mileage, to be expended by the state highway departments.

Another amendment extends the life of the Public Works Administration for two years and makes available until June 30, 1937, all sums appropriated to carry out the purposes of the act for which it was created. In addition provision is made for the sale of securities acquired by the P.W.A. and for making available the proceeds of such sale for further loans. This would make it possible for the P.W.A. to make additional loans to railroads.

Students Compete in Bridge Design Contest

Ninety-four students representing twenty-two colleges in the United States participated in the seventh annual students' bridge design competition of the American Institute of Steel Construction. The subject of the competitive design this year is a steel bridge to carry a highway over a railroad and another highway parallel to to the railroad. It is required that the structure provide connections for two lanes of traffic between the upper and lower highways, which must be so arranged that the lines of traffic do not cross. The surrounding country is flat and the maximum grades on the approaches and highway connections are not to exceed 5 per cent. There must be three lanes of traffic over the bridge and as the structure is located in the open country there is no provision for sidewalks or for lighting.

A jury of nationally-known engineers and architects selected the ten best designs from the preliminary drawings for entry in the final contest, the winners of which will be selected on May 1. The winner will be awarded $100 in cash; there will be a second prize of $50, and certificates of merit will be given those winning third, fourth and fifth places.

B. & O. Train Crews in New Jersey Sufficient

The Public Utility Commissioners of New Jersey, acting on a complaint of John D. Mullane, representing the Brotherhood of Railroad Trainmen, has issued a decision to the effect that his charges of employment of insufficient train crews are not justified; and the complaint is dismissed. The Baltimore & Ohio operates eight passenger trains each way daily over the Central of New Jersey, between Jersey City, N. J., and Bound Brook, and the regular crew of each train is a conductor, a trainman who acts as flagman, an engineman and a fireman. The trains have from 6 to 12 cars each, and the average number of passengers per train, leaving Jersey City, is 20. A baggage checker is carried on each train; and, including the Pullman and dining-car attendants, there is a total personnel of 13 to 21 persons. On this section of the road, 32 miles long, there are points (telephones) less than one mile apart where communication can be had with the train dispatcher. The trains stop at Elizabeth and sometimes at Plainfield; also an occasional stop at Bound Brook. Complainants averred that the regular crew was insufficient to carry out the usual operating rules. Two conductors testified that in an emergency they would direct one or more members of the train personnel to perform any necessary duty for safe operation. The general manager of the Central of New Jersey testified that the service performed by the Baltimore & Ohio crews provides all necessary safety.

New England Shippers' Advisory Board

The New England Shippers' Advisory Board held its tenth annual meeting at Boston, Mass., on March 20, with a large attendance. The predictions of the commodity committees for the ensuing quarter, when summarized, show an expectation of about one per cent increase in the volume of freight traffic over the second quarter of 1934.

The principal speaker at the meeting was W. H. Day, manager of the transportation department of the Boston Chamber of Commerce, who described in strong language the disastrous effect on business to be expected if numerous bills now before Congress should become law. J. W. Smith, vice-president of the Boston & Maine, and R. F. Bohman, of the Heywood Wakefield Company, agreed with Mr. Day.

The Board unanimously voted to authorize the appointment of a legislative committee, actively to oppose, both in Congress and in the New England legislatures, any and all legislation which would have the effect of increasing the cost of railroad operation.

W. F. Garcelon was re-elected chairman of the Board, and Hartford, Conn., was selected as the place for the September meeting.

Mechanical Department Conventions

Last fall tentative arrangements were made looking toward the holding of three-day conventions of eight of the mechanical department associations during the early part of May. While these associations are not a part of the Association of American Railroads, they have been looking for guidance and advice to the officers of that association.

Many of the officers and members of these associations, including the Air Brake Association, American Railway Tool Foremen's Association, Car Department Officers Association, International Railway Fuel Association, International Railway General Foremen's Association, International Railway Master Blacksmiths' Association, Master Boiler Makers' Association and Traveling Engineer's Association, were sorely disappointed a short time ago to receive a letter from J. R. Downes, vice-president of the Association of American Railroads, in which he made this statement:

"Our Association has not absorbed the associations enumerated in your letter, and from the standpoint of the activities of the Association of American Railroads, there is no necessity for holding any conventions such as you have enumerated.

"You are probably aware that, because of the necessity for economy in railroad operation, the number of conventions being held by the various divisions of our Association have been limited."

Equipment and Supplies

PASSENGER CARS

THE DELAWARE RIVER JOINT COMMISSION has given a contract to the J. G. Brill Company, subject to the approval of the Federal Emergency Administration of Public Works, for the furnishing of 26 steel passenger cars, 2 extra trucks and car replacement units for the Delaware River Joint Commission's high-speed rail transit project. Inquiry for this equipment was reported in the *Railway Age* for February 23.

IRON AND STEEL

THE WESTERN PACIFIC has ordered 3,000 tons of rails from the Colorado Fuel & Iron Company.

THE VIRGINIAN has ordered 230 tons of steel for the substructure of a bridge at milepost 18.9 west of Elmore, W. Va. The order was placed with the Virginia Bridge & Iron Company.

THE NEW YORK CENTRAL has given a contract to the Truscon Steel Company for 600 tons of steel to be used for track coverage on the elevated express highway between Seventy-second street and Seventy-ninth street, New York City. A contract has also been given to the Fireproof Products Company for 300 tons of steel in connection with its track work in New York City.

STATEN ISLAND RAPID TRANSIT.—Bids will be received until 11:30 a. m., April 8, by the chief engineer of this road (subsidiary of the Baltimore & Ohio) at his office in the Baltimore & Ohio Central building, Baltimore, Md., for furnishing, fabricating and delivering about 212 tons of structural steel for three bridges to be constructed in connection with grade crossing elimination work at Ft. Wadsworth, Staten Island, N. Y.

THE CHICAGO & NORTH WESTERN has ordered 25,000 tons of rails, placing 18,000 tons with the Illinois Steel Company and 7,000 tons with the Inland Steel Company. Orders for the necessary tonnage of fittings have been placed with the Illinois Steel Company, the Inland Steel Company, the Republic Steel Corporation, the Jones & Laughlin Steel Corporation, the Sellers Manufacturing Company, the Morden Frog & Crossing Works, the P. & M. Company, the American Fork & Hoe Company, the Creepcheck Company and the Rail Joint Company.

MISCELLANEOUS

THE NEW YORK CENTRAL LINES has placed an order with the Timken Roller Bearing Company, Canton, Ohio, for bearings, main and side rods, and other reciprocating parts, to completely equip all driving-axle crank pins of its high speed streamlined steam passenger locomotive, the Commodore Vanderbilt. This locomotive is already equipped on all axles with Timken bearings.

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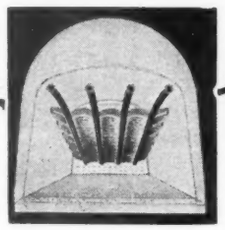
FOR SERVICE TO THE RAILROADS



There's More to SECURITY ARCHES Than Just Brick

Next to quality material the railroads must have an adequate prompt supply of equipment and materials.

To render such service of supply the American Arch Company has plants located at various points throughout the country from which immediate shipment of Security Arch Brick can be made from stock.

These plants are shown to the right.

HARBISON-WALKER REFRACTORIES CO.
Pennsylvania Ohio Kentucky
Alabama Missouri

NORTH AMERICAN REFRACTORIES CO.
Pennsylvania Kentucky

IRONTON FIRE BRICK CO.
Ohio

DENVER SEWER PIPE & CLAY CO.
Colorado

ATHENS BRICK & TILE CO.
Texas

GLADDING-McBEAN & CO.
California
Washington

DIAMOND FIRE BRICK CO.
Colorado

LOUISVILLE FIRE BRICK WORKS
Kentucky

DOMINION FIRE BRICK & CLAY PRODUCTS, LTD.
Saskatchewan, Canada

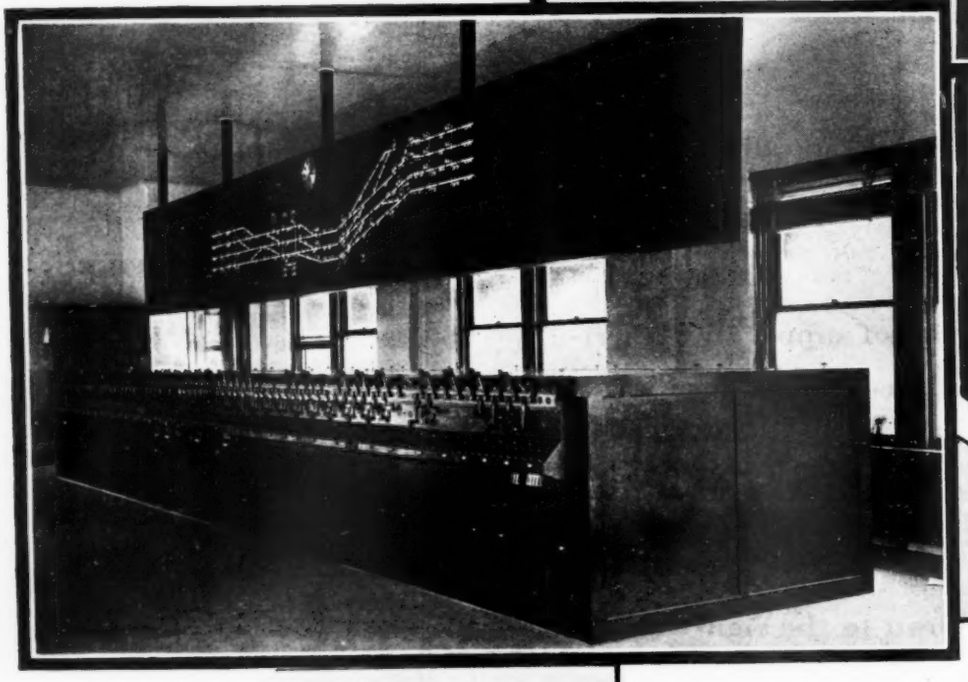
CANADA FIRE BRICK CO., LTD.
Ontario, Canada
Quebec, Canada

AMERICAN ARCH COMPANY

INCORPORATED

Locomotive Combustion Specialists

NEW YORK CHICAGO



"Union" Model 14
Electro-Pneumatic Interlocking Machine at "Dock"
Newark, N. J. 155-lever frame. » » » » » »

DISTRICT OFFICES

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

SIXTY YEARS AGO - -

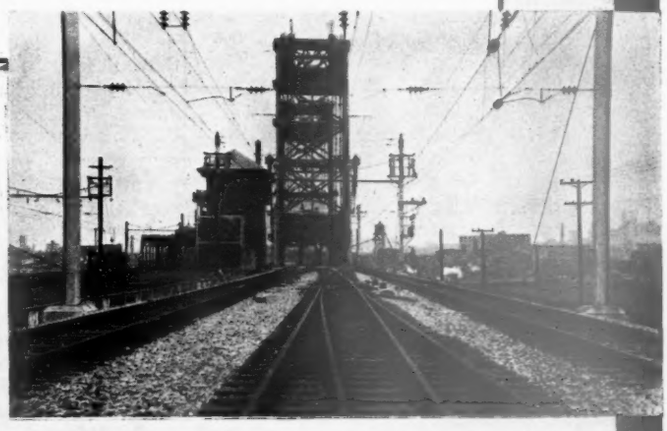
—the Pennsylvania Railroad placed in service at East Newark, N. J., the first interlocking plant in America. This was in February, 1875. » » »

In March, 1935, the same road dedicated its new Newark, N. J. terminal improvement, an important feature of which is the "Union" Electro-Pneumatic Interlocking System. Safety of passengers, freight and equipment is assured. » » » » » » »

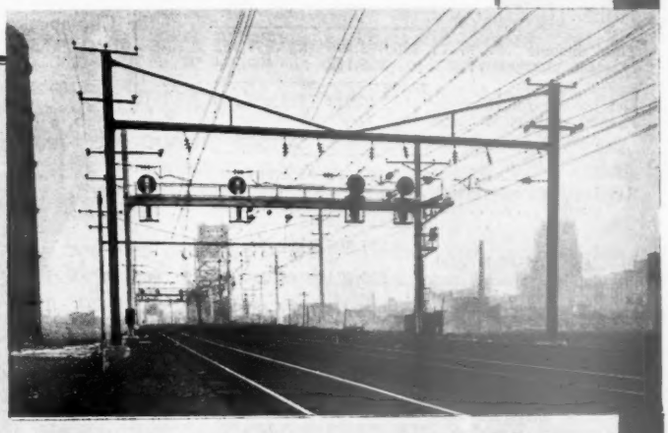
During the six intervening decades many operating improvements were inaugurated and traffic increased greatly. Throughout this period, improvements in signal and interlocking design and methods have kept pace with changing conditions.

The "Union" Electro-Pneumatic Interlocking System has achieved many years of economic accomplishments. The popularity of this system is evidenced by its use at most of the large terminals in this country and throughout the world. It has reduced maintenance labor costs to the minimum and proved economical at large terminals as well as at the small remote locations. » » » » » »

"Dock" Tower at east end of three-track lift bridge over Passaic River. » » »



"Union" Position Light Signals at east end of new tracks leading to the new station. » » » » » » » »



1881 **Union Switch & Signal Co.** 1935

SWISSVALE, PA.

Supply Trade

General Electric Company

The forty-third annual report of the General Electric Company for the year 1934 shows profit available for dividends of $19,726,043, equivalent, after $2,575,074 of regular 6 per cent cash dividends on the special stock, to 59 cents a share on 28,845,927 shares of no par value common stock, compared with $13,429,739, or 38 cents a share on the same number of shares in 1933. Regular cash dividends of 60 cents a share on both the special and common stock amounted to $19,881,453, resulting in a deficit from operations of $155,410, which was taken from surplus.

Orders received amounted to $183,660,303 during 1934, compared with $142,770,791 during 1933, an increase of 29 per cent. Sales billed totaled $164,797,317 as compared with $136,637,268, an increase of 21 per cent. The orders received exceeded the shipments by a substantial amount, so that unfilled orders were greater at the end than at the beginning of the year.

A comparative statement of income and earned surplus follows:

	1934	1933
Net sales billed	$164,797,317	$136,637,268
Costs, expenses and all charges except depreciation and interest	145,716,210	123,585,652
	$19,081,107	$13,051,616
Depreciation of plant and equipment	7,335,997	6,179,511
Net income from sales	$11,745,110	$6,872,105
Income from other sources:		
Interest and dividends from affiliated companies and miscellaneous investments	$5,608,910	$4,376,971
Interest on marketable securities	1,339,881	717,342
Interest on bank balances and receivables	742,831	1,266,460
Royalties and sundry revenue	655,462	606,575
	$8,347,085	$6,967,348
Total income	$20,092,195	$13,839,453
Interest charges	366,152	409,714
Net income for the year	$19,726,043	$13,429,739
Earned surplus at beginning of year	117,621,617	122,224,720
	$137,347,660	$135,654,459
Revaluation of investments	1,195,793	3,920,210
	$136,151,867	$131,734,249
Regular 6% cash dividends on special stock	2,575,074	2,575,057
Accrued dividend of 15¢ on special stock to be retired April 15, 1935	643,770	.....
Premium on special stock	4,292,964	.....
Earned surplus available for dividends on common stock	$128,640,059	$129,159,192
Cash dividends on common stock	17,306,379	11,537,576
Earned surplus at end of year	$111,333,680	$117,621,616

Current assets at the end of 1934 amounted to $177,269,050, including cash and marketable securities (valued at the lower of par or market) of $107,949,999, and current liabilities were $17,461,338. This compares with current assets of $175,314,394, including cash and marketable securities of $111,878,508, and current liabilities of $13,302,577 at the end of 1933.

C. B. Nolte, president and general manager of the Robert W. Hunt Company, Chicago, has been elected president of the **Crane Company,** Chicago, to succeed **John W. Berryman,** who has been elected chairman.

James C. Ogden, vice-president of the **Robert W. Hunt Company,** Chicago, has been elected president to succeed **C. B. Nolte,** who has resigned to become president of the Crane Company. **F. M. Randlett,** Pacific Coast manager, has been elected vice-president and general manager of the Hunt Company.

S. H. Blackwood, assistant district sales representative in the New York territory of the **Reading Iron Company,** Philadelphia, Pa., has been appointed district sales representative in the southern territory with headquarters at 1104 Continental building, Baltimore, Md. Mr. Blackwood takes the position held for many years by **W. J. White,** who recently resigned. **W. N. Johnson** has been appointed salesman in the New York territory.

OBITUARY

Grant Warren Spear, retired vice-president of the Dearborn Chemical Company, at New York, and for years its eastern manager, died at his home in Palm Beach, Fla., on March 22 after an illness of several months.

William F. Walsh, manager of the railroad sales department of the Standard Oil Company of New Jersey, died on March 19 after a brief illness at the New York Hospital, New York City. Mr. Walsh was born at Cleveland, Ohio, in 1882 where he spent his early life, attending grammar school and St. Ignatius College, afterwards serving an apprenticeship on the Norfolk & Western. He subsequently entered the mechanical department of the Chesapeake & Ohio serving in various official capacities until he became supervisor of air brakes, from which position he resigned in 1912 to become lubrication engineer in the mechanical department of the Galena Signal Oil Company, where he remained until entering the service of the United States army in 1917 being commissioned a captain. Following the war he returned to the Galena Signal Oil Company and resigned in 1919 to become assistant superintendent of motive power on the Chicago, Milwaukee & St. Paul, now the Chicago, Milwaukee, St. Paul & Pacific. In 1923 he again returned to the Galena Company as supervising engineer in charge of the Western territory, being located in Chicago until 1925, at which time he was promoted to manager of the St. Louis office. In 1926 he went with the Standard Oil Company of New Jersey to organize and supervise its railroad sales department. Mr. Walsh was a member of a number of organizations including the American Society of Mechanical Engineers, the New York Railroad Club, the Traveling Engineers' Association, the International Railway Fuel Association and the Brotherhood of Locomotive Engineers.

William F. Walsh

Construction

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—This company is making plans to rebuild its 15-stall enginehouse at Itasca, Wis., which was recently damaged by fire. It is estimated that the repair work will cost about $50,000.

NEW YORK, CHICAGO & ST. LOUIS.—A contract has been awarded to the Ft. Pitt Bridge Works for repairs to this company's bridge over the Cuyahoga river at Cleveland, Ohio. The work involved, which will cost about $20,000, includes the replacement of corroded parts and repairs to bearings and the drawbridge machinery.

STATEN ISLAND RAPID TRANSIT RAILWAY COMPANY.—This company which is a subsidiary of the Baltimore & Ohio, through H. A. Lane, chief engineer, will advertise in the near future for bids on grading, masonry and other heavy construction in connection with the elimination of grade crossings through Port Richmond and Tower Hill, Staten Island, N. Y., involving the construction of a double track reinforced concrete viaduct about 4,000 ft. long. This work will involve the elimination of eight grade crossings at an estimated total cost of $1,650,000 and is being carried out with the aid of a grant from the Federal Emergency Administration of Public Works of 30 per cent of the construction cost.

VIRGINIAN.—This company has given a contract to W. W. Boxley & Company for constructing the substructure for a bridge over Guyandot river at mile-post 18.9 of the Guyandot line west of Elmore, W. Va. The work involves the use of 230 tons of steel which has been ordered from the Virginia Bridge & Iron Company.

WABASH.—Bids will be received at the office of the chief engineer for the receivers of this road, at St. Louis, Mo., until 10 a.m. central standard time, April 11, for the construction of a railway road bed between Robertson, Mo., and a point west of St. Charles. The proposed bridge over the Missouri river is not included in this contract. See *Railway Age* January 19, page 93.

Continued on next left-hand page

Lowered by Superheater Unit REmanufacturing

TODAY'S operating practice loads the locomotives more nearly to the limit of their hauling capacity and runs up greater mileage per month than formerly. To get this increased work, naturally requires higher efficiency of locomotive equipment and calls for more frequent heavy general boiler repairs and more firebox renewals.

Obviously, the demands on the superheater units are correspondingly more severe. Increased evaporation, increased pressures, increased gas and steam temperatures all combine to cause greater wear on the superheater units . . . . consequently better maintenance is required. Patch repairing superheater units at general shopping or replacing only those in bad condition may reduce performance effectiveness and even permit engine failures. A far better and the most economical way, in the long run, to recondition unserviceable superheater units is to have them factory rebuilt—through the Elesco unit REmanufacturing service.

ELESCO

This service guarantees a renewed service life to meet today's operating requirements by restoring the superheater units to a condition practically equal to new—at a much less cost. Operating and maintenance costs are lower, because REmanufactured superheater units give full-efficiency, troublefree service for many additional years.

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, Inc.

60 East 42nd Street
NEW YORK

NRA MEMBER U.S. WE DO OUR PART

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

A-968

Superheaters - Feed Water Heaters - Exhaust Steam Injectors - Superheated Steam Pyrometers - American Throttles

Financial

BALTIMORE & OHIO.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Park, W. Va., to Berryburg Junction, 19.97 miles, part of which is to be submerged as part of a flood control project, and to construct and operate a newly located line from Grafton to Berryburg Junction, 12.28 miles. The expense is to be borne by the United States government.

BOSTON & ALBANY.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $9,000,000 of main line first mortgage 4½ per cent bonds, maturing in 1943, to be guaranteed by the New York Central, to be used in connection with the retirement of $7,000,000 refunding bonds of 1933 and $2,000,000 of improvement bonds of 1910.

BOSTON & MAINE.—*Abandonment of Operation.*—The Interstate Commerce Commission has authorized this company to abandon operation of a portion of a branch line extending from Keene, N. H., to Coolridge Crossing, 21.9 miles. The company proposes to operate bus and truck service to replace the train service.

BOSTON & MAINE.—*Annual Report.*—The 1934 annual report of this company shows net income, after interest and other charges, of $293,492, as compared with net income of $321,571 in 1933, a decrease of $28,078. Selected items from the income statement follow:

	1934	Increase or decrease compared 1933
RAILWAY OPERATING REVENUES	$42,155,612	+$278,242
Maintenance of way	5,234,020	+349,814
Maintenance of equipment	5,811,919	−742,971
Transportation	17,070,663	+924,329
TOTAL OPERATING EXPENSES	30,872,270	+482,395
Operating ratio	73.23	+.66
NET REVENUE FROM OPERATIONS	11,283,341	−204,152
Railway tax accruals	2,431,775	−131,556
Railway operating income	8,820,960	−101,818
Hire of freight cars—Dr.	1,783,924	+99,899
NET RAILWAY OPERATING INCOME	6,893,514	−174,800
Non-operating income	1,030,145	−61,295
GROSS INCOME	7,923,659	−227,367
Rent for leased roads	1,240,084	−3,126
Interest on funded debt*	5,580,604	−169,605
TOTAL DEDUCTIONS FROM GROSS INCOME	7,630,167	−199,289
NET INCOME	$293,492	−$28,078

* Interest amounting to $163,740.80 for 1934 and $155,491.27 for 1933 accrued on bonds of Boston & Maine R. R. held in Sinking Fund is included in account "Income Applied to Sinking Funds."

CANADIAN NATIONAL.—*Earnings in 1934.*—Hon. E. N. Rhodes, Minister of Finance, in his Budget speech in the House of Commons at Ottawa last week,

(*Continued on page 521*)

Railway Officers

Executive Changes on P. R. R.

The following executive changes have been announced by the Pennsylvania to become effective on April 1:

C. S. Krick, vice-president, Eastern region, has been granted a leave of absence on account of ill-health.

R. C. Morse, general manager, New York Zone and Long Island Railroad Company, has been promoted to acting vice-president, Eastern region.

J. A. Appleton, general superintendent, Eastern Pennsylvania division, Harrisburg, Pa., has been appointed general manager, New York Zone and Long Island R. R. Co.

Raymond Swenk, general superintendent, special duty, office of vice-president—operation, has been appointed general superintendent, Eastern Pennsylvania division at Harrisburg.

D. M. Sheaffer, chief of passenger transportation, Philadelphia, Pa., has been appointed assistant to vice-president—operation.

E. E. Ernest, superintendent, Long Island Railroad Company, has been promoted to chief of passenger transportation, Philadelphia.

J. C. White, superintendent freight transportation, Eastern region, has been appointed superintendent, Long Island Railroad Company.

A. F. McIntyre, trainmaster, St. Louis division, succeeds Mr. White as superintendent of freight transportation, Eastern region.

F. C. Wilkinson, superintendent, Logansport division, has been appointed superintendent, special duty, office vice-president—operation.

F. R. Rex, superintendent, special duty, office vice-president, has been appointed superintendent, Logansport division.

F. L. Dobson, general superintendent, Lake division, Cleveland, Ohio, has been appointed general fuel manager, Philadelphia.

T. C. Herbert, superintendent, Pittsburgh division, succeeds Mr. Dobson as general superintendent, Lake division.

G. S. West, superintendent, Maryland division, succeeds Mr. Herbert as superintendent, Pittsburgh division.

S. R. Hursh, superintendent, Wilkes-Barre division, has been appointed superintendent, Maryland division, succeeding Mr. West.

P. E. Feucht, division engineer, Ft. Wayne division, has been appointed superintendent, Wilkes-Barre division, succeeding Mr. Hursh.

OPERATING

A. H. Ryden, who has been appointed superintendent of telegraph of the Kansas City Southern, with headquarters at Kansas City, Mo., succeeding **R. Hooper,** deceased, was born on October 4, 1888, in Kansas City, Mo., and entered railway service on September 17, 1904 as an office boy in the transportation department of that railroad. On September 8, 1905, he was appointed a clerk in the office of the superintendent of telegraph, and on February 2, 1912, was promoted to chief clerk, which position he has held until his promotion to superintendent of telegraph on March 1, 1935.

D. S. Thomson has been appointed assistant superintendent of the Smith's Falls division of the Canadian Pacific, with headquarters at Smith's Falls, Ont., succeeding **W. F. Tully.**

MECHANICAL

J. P. Kelly, master mechanic of the Calgary division of the Canadian Pacific, with headquarters at Calgary, Alta., has been promoted to master mechanic of the Saskatchewan district, with headquarters at Moose Jaw, Sask., succeeding **E. G. Bowie,** who has been transferred to the British Columbia district with headquarters at Vancouver, B. C., where he replaces **H. M. Allan.** Mr. Allan has been transferred to the Alberta district, with headquarters at Calgary, to succeed **M. J. Scott,** who has retired. **J. W. McKinnon,** locomotive foreman at Winnipeg, Man., has been promoted to master mechanic at Calgary to succeed Mr. Kelly.

PURCHASES AND STORES

F. J. McGuinness, division store keeper for the Delaware & Hudson, with headquarters at Oneonta, N. Y., has been appointed superintendent of stores, with headquarters at Colonie, N. Y., succeeding **F. C. Reardon,** deceased.

OBITUARY

John F. Brizzie, general auditor of the Railway Express Agency at Chattanooga, Tenn., died suddenly on March 23.

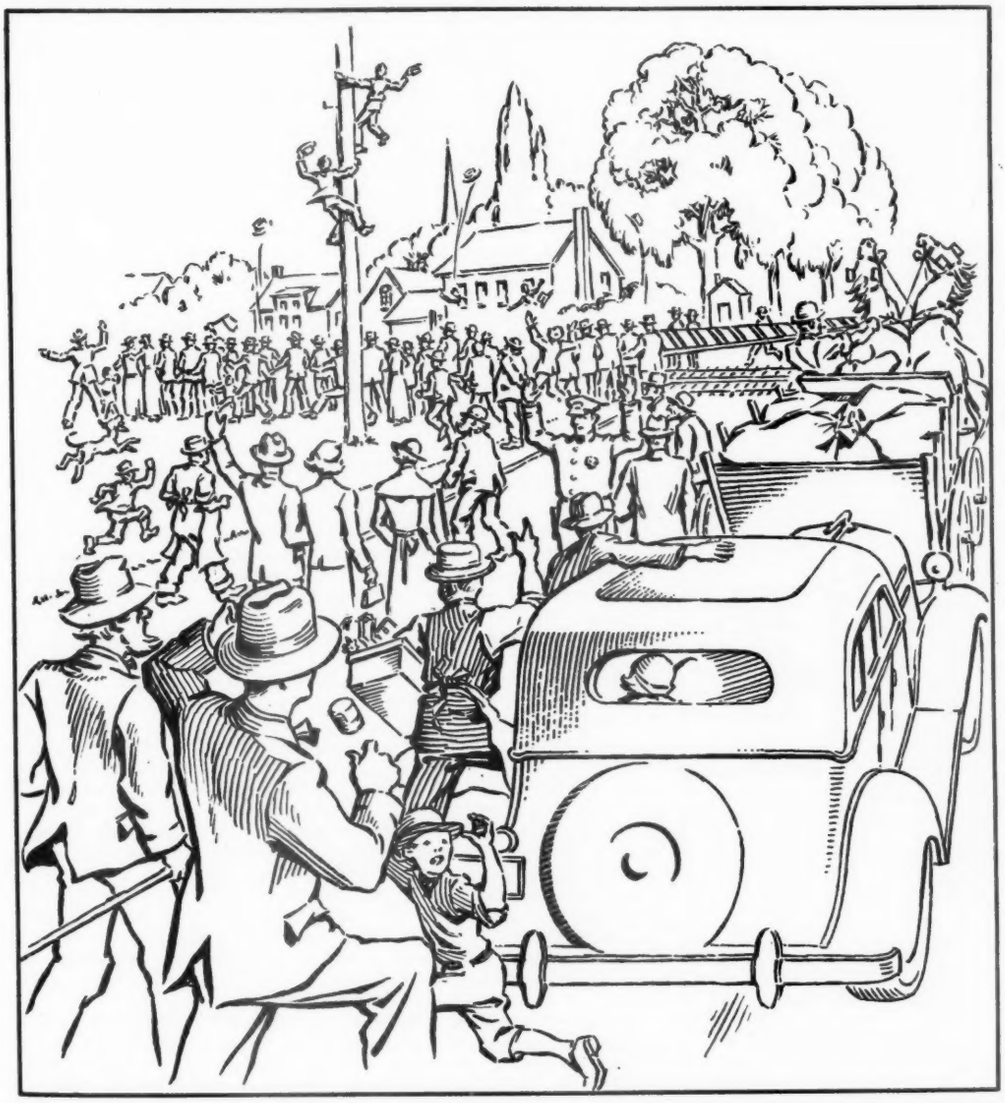
Horace J. McQuade, former purchasing agent for the Lehigh Valley, who retired in 1932, died of a heart ailment on March 26 at his home in South Orange, N. J. Mr. McQuade was 68 years old.

George W. Cale, Jr., chief surgeon of the St. Louis Southwestern, with headquarters at Texarkana, Tex., died on March 24 in a hospital at St. Louis, Mo., following an operation a month ago for gastric ulcers.

Frederick I. Plechner, who retired about a year ago as purchasing agent of the Great Northern, with headquarters at St. Paul, Minn., died in that city on March 22, following a long illness. Mr. Plechner was born on February 8, 1871, at Minneapolis, Minn., and entered the service of the Great Northern on December 1, 1913. Subsequently, he was appointed assistant purchasing agent and in 1926 he was further promoted to purchasing agent, holding this position until his retirement.

Annual report advertising begins on next left-hand page

AMERICAN LOCOMOTIVE COMPANY



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ANNUAL REPORT OF
PULLMAN INCORPORATED
AND ALL SUBSIDIARIES
For Fiscal Year 1934

CONSOLIDATED BALANCE SHEET

DECEMBER 31, 1934

ASSETS

CURRENT ASSETS:		
Cash	$ 16,729,740.63	
U. S. Government Securities (Market value $19,871,592.51)	19,037,436.52	
Accounts and Notes Receivable	6,606,650.49	
Equipment Trust and Other Deferred-Payment Car Accounts	14,054,893.22	
Marketable Securities (Market value $2,158,328.17)	2,360,254.44	
Inventories at Cost	10,686,021.78	$ 69,474,997.08
INVESTMENT IN AFFILIATED COMPANIES AND OTHER SECURITIES AT COST		4,145,659.27
SPECIAL DEPOSITS WITH VARIOUS STATES UNDER COMPENSATION ACTS		124,029.26
RESERVE FUND ASSETS:		
Pension and Insurance Reserve Fund Assets (U. S. Government Securities)		8,026,580.98
DEFERRED CHARGES APPLYING TO FUTURE OPERATION OF THE PROPERTIES		557,557.52
EQUIPMENT AND PROPERTY:		
Balance, December 31, 1933	$356,881,295.70	
Additions during Year	7,243,497.37	
	$364,124,793.07	
Less: Retirements during Year	2,103,172.16	$362,021,620.91
DEDUCT Depreciation Reserves:		
Balance, December 31, 1933	$165,138,576.46	
Additions during Year	11,993,240.27	
	$177,131,816.73	
Less: Charges on Account of Retirements during Year	1,219,122.66	175,912,694.07
		186,108,926.84
		$268,437,750.95

LIABILITIES

CURRENT LIABILITIES:		
Current Accounts Payable and Payrolls	$ 6,559,993.56	
Accrued Taxes, not yet due, including Provision for Federal Income Tax	3,952,524.32	$ 10,512,517.88
RESERVES:		
Pension and Insurance Reserves	$ 8,308,862.25	
Reserve for Contingencies	3,350,000.00	
Other Reserves	2,922,704.89	14,581,567.14
DEFERRED CREDITS APPLYING TO FUTURE OPERATION OF THE PROPERTIES		1,416,635.20
CAPITAL STOCK		
PULLMAN INCORPORATED		
Authorized 3,875,000.000 shares, of no par value.		
Unissued 199.444 shares, held for exchange for 99.722 outstanding shares of The Pullman Company.		
Issued 3,874,800.556 shares at stated value of $50 per share	193,740,027.80	
Reacquired (In Treasury) 54,328.000 shares at stated value of $50 per share	2,716,400.00	
Outstanding 3,820,472.556 shares	$191,023,627.80	
THE PULLMAN COMPANY (a subsidiary)		
Outstanding 99.722 shares of $100 par value each	9,972.20	
	$191,033,600.00	
SURPLUS AS PER STATEMENT FOLLOWING	50,893,430.73	241,927,030.73
		$268,437,750.95

TO THE STOCKHOLDERS:

Statements are submitted herewith showing result of operation of Pullman, Incorporated, and subsidiaries for the fiscal year ended December 31, 1934, and financial condition of your company at that date.

The operations of your company and subsidiaries in 1934 yielded consolidated net earning of $2,957,669.69, or 76 cents per share, as compared with net loss of $2,672,864.22 in 1933. Payment of dividends at the rate of $3 per share during 1934 absorbed all of the year's earning and necessitated draft of $8,502,811.06 on surplus.

* * *

The outstanding features of 1934 operations were—

Restoration of earning power, after a lapse of two years, in both the sleeping car and the manufacturing subsidiaries.

Marked expansion in volume of rail passenger travel produced an increase in the gross revenue of the sleeping car business from $39,316,000 to $44,524,000, yielding an earning of $597,355.64, as contrasted with loss of $1,220,034.59 in 1932 and $564,426.81 in 1933.

Notwithstanding continued low volume of new car production, the manufacturing business with the aid of a good volume of air-conditioning work and miscellaneous parts sales earned a profit of $1,292,591.41, as contrasted with losses of $4,074,830.03 in 1932 and of $3,825,077.20 in 1933.

Sleeping Car Business

Part of the improvement in the gross revenue from sleeping car operation is assigned to the increase of business and tourist travel following recovery in general business conditions, and part to the reduction in the over-all cost of rail passenger travel in certain major rate regions. In those regions the removal of surcharge on the cost of Pullman accommodations and marked lowering of the rail charges for transportation in Pullman cars effective December 1, 1933, produced a steady improvement throughout 1934 in the occupancy of Pullman cars, as compared with 1933. This improvement over 1933 did not obtain in such marked degree in those rate regions where the Pullman surcharge was maintained and where there was no general reduction in the over-all cost of rail passenger travel.

The Interstate Commerce Commission is engaged at this time in a general investigation of rail passenger rates and arrangements. From the course of this investigation there is indication of possible countrywide elimination of the surcharge on Pullman tickets, together with some modification of other components of the passenger rates now in effect in certain rate regions. It is believed the resultant rate attraction would contribute to a revival of both Pullman and railroad passenger revenue, by activating potential rail travel severely repressed or diverted during the depression period. Retention of existing differentials—particularly where extreme in amount—between the rail rates charged for transportation in Pullman cars and those applied in coaches, or the imposition of new charges of this kind in regions not heretofore affected, will, of course, tend to offset removal of the surcharge and to lessen the use of Pullman accommodations.

The reaction of the traveling public to the improved rail services available during 1934, particularly in the air-conditioned cars, was very favorable and encourages the hope for continued traffic improvement in 1935. That year will witness a substantial expansion in the number of air-conditioned Pullman cars in operation, further improvements in equipment and refinements in service, the speeding up of train schedules and restoration of services suspended during the depression, all of which should increase the appeal of the rail-Pullman travel services and hasten traffic restoration to more normal volume than in recent years, particularly if accompanied by continued improvement in general business activity.

* * *

Federal Co-ordinator Eastman has recently transmitted to the regional co-ordinating committees of the railroads a survey of passenger traffic, prepared by the Section of Transportation Service of the Co-ordinator's organization. The results of this survey were submitted by Co-ordinator Eastman, without specific approval of its conclusions. A contentious feature of this report is the recommendation by its authors that the railroads acquire title to or use of Pullman properties and cease the prac-

tice of "farming out" sleeping and parlor car service to The Pullman Company. It is the belief of the Pullman management that the most important conclusions and recommendations of this report with respect to the Pullman services are not supported by the statistical evidence collected or by the operating facts, and that conditions criticized are not a product of Pullman pool operation; that the standards of fairness and efficiency which have distinguished the operation of the Pullman pool throughout its history make its continuation of economic and traffic advantage to the railroads. A thorough analysis of the section of this survey having to do with the operation of Pullman cars, is being prepared for the information of interested parties.

* * *

Manufacturing Business

Your company's manufacturing and export subsidiaries shared in the meager volume of new-car orders placed during the year, and augmented by a substantial volume of air-conditioning work, repair operations and sales of miscellaneous parts, there was sufficient production in the plants to permit the manufacturing business to operate at a profit for the first year since 1930.

* * *

Under the compelling influence of the subnormal level of railroad traffic and earning in the last four years, the carriers have been forced to curtail their equipment replacement and maintenance expenditures to an abnormal degree in order to conserve liquid resources. This has led to a marked increase in bad order equipment, as well as in the number of obsolete or worn-out units on line, and is hastening the extinction of the surplus of good order freight cars, which has been reduced by more than a half in the last two years and is rapidly dwindling. The situation is aggravated by the fact that equipment retirements have proceeded at about the normal pace during the last four years, but replacements have not been sufficient to maintain the stock of equipment at the starting level in each of these years.

Obsolescence of existing equipment has been accelerated during the past few years by the development of new types of freight and passenger cars, with demonstrated possibilities of materially reducing operating costs and of contributing to improvement in service and efficiency. It is, therefore, obvious that considerable modernization of equipment stocks is indicated for the future. Railway management is fully cognizant of this situation and will undoubtedly embark upon an adequate program of improvement when traffic and earning encouragement is present. Financing of equipment purchases has been and still is available on very favorable terms by loans from governmental agencies.

The manufacturing plants have been maintained in good physical condition; the Research Division has been actively and effectively at work on improvement in car design and methods of construction, and in furthering the development and use of new metal alloys and other new materials for car building; adequate organization has been maintained for expansion of operations promptly upon appearance of demand for production of new equipment.

* * *

Additions to Equipment and Property

During 1934 there were gross additions of $7,243,497.37 to Property and Equipment Account, classified as follows:

Air conditioning apparatus in cars	$5,423,312.60
Routine additions and betterments to cars	101,015.51
44 steel cars rebuilt and revalued	1,232,500.00
Improvements at laundries, shops, district offices, etc	135,756.77
Improvements at manufacturing plants	350,912.49
	$7,243,497.37

Four new Pullman sleeping cars, of aluminum-alloy construction, were completed in 1934 for operation in the first new-type motorized sleeping car train built in this country, but as that train had not been placed in regular revenue service at the year-end, these cars have not yet been added to the equipment list of the sleeping car subsidiary or included in the above list of capital expenditures on new equipment in 1934. During the year, 49 cars were retired; 44 of these were rebuilt and returned to service, leaving a total of 8,473 cars on the equipment list at the close of 1934.

* * *

At the close of 1934, there were in service 1,291 air-conditioned Pullman cars and there is now under way a program for equipment of 2,000 additional Pullman-owned cars to be ready for service during the coming summer. With similar progress in equipment of railroad-owned passenger train cars, practically all of the important passenger trains in the country will soon be fully equipped with air-conditioned cars. It is believed that the facilities thus afforded for cool, clean, quiet, as well as safe, travel will add greatly to the appeal of the rail passenger services.

The engineering, manufacturing and operating staffs are working intensively on plans for new types of Pullman sleeping and

CONSOLIDATED SURPLUS ACCOUNT

YEAR ENDED DECEMBER 31, 1934

BALANCE OF SURPLUS, as at December 31, 1933*		$ 59,770,863.06
Balance from Income Account for Year Ended December 31, 1934	$ 2,957,669.69	
Sundry credit adjustments on business of prior years	352,245.38	3,309,915.07
		$ 63,080,778.13
Less:		
Adjustment on revalued property units retired in 1934	376,866.65	
Addition to Reserve for Contingencies on Securities, Trade Receivables, etc.	350,000.00	
Dividends Declared and paid in 1934	11,460,480.75	12,187,347.40
BALANCE OF SURPLUS, as at December 31, 1934		$ 50,893,430.73

*For complete historical analysis of Surplus Account from formation of Pullman Incorporated as of April 30, 1927 to December 31, 1933, see statement on page 10 of 1933 Annual Report.

CONSOLIDATED INCOME ACCOUNT

FOR THE YEARS ENDED DECEMBER 31, 1933 AND 1934

	1933	1934
EARNINGS:		
From sleeping car business of The Pullman Company, after deducting all expenses incident to operations	$ 8,621,542.35	$ 9,808,157.27
Less: Charges and allowances for Depreciation	9,185,969.16	9,210,801.63
	*$ 564,426.81**	$ 597,355.64
From all manufacturing business, Pullman Railroad, and other miscellaneous properties, after deducting expenses incident to operations	*$ 1,046,937.27**	$ 4,075,030.05
Less: Charges and allowances for Depreciation	2,778,139.93	2,782,438.64
	*$ 3,825,077.20**	$ 1,292,591.41
From Security Investments, etc., less Administration Expense of Pullman Incorporated	$ 1,716,639.79	$ 1,734,629.28
Total Earnings from All Sources	*$ 2,672,864.22**	$ 3,624,576.33
Less: Provision for Federal Income Tax		666,906.64
BALANCE carried to Surplus	*$ 2,672,864.22**	$ 2,957,669.69

*Figures in *italics* denote deficit.

THE PULLMAN COMPANY

TRAFFIC AND OPERATING STATISTICS

COMPARATIVE STATEMENT FOR YEARS ENDED DECEMBER 31

ITEM	1930	1931	1932	1933	1934
CARS OWNED	9,860	9,483	9,279	8,478	8,473
CARS OPERATED	8,559	7,402	5,693	4,944	5,029
CAR MILES	1,183,668,557	1,025,164,501	799,484,608	710,747,267	737,167,857
REVENUE PASSENGERS:					
Berth	...,498,844	14,583,183	10,185,444	9,248,461	10,258,642
Seat	10,861,342	8,401,738	5,564,063	4,468,077	4,846,707
Total	29,360,186	22,984,921	15,749,507	13,716,538	15,105,349
REVENUE PASSENGER MILES	12,515,414,775	9,891,910,222	6,757,760,858	6,141,986,577	6,891,002,293
REVENUE FROM CARS	$ 77,666,074	$ 63,683,507	$ 44,196,043	$ 39,316,239	$ 44,523,817
Average per Car	$ 9,074.31	$ 8,603.44	$ 7,763.50	$ 7,952.31	$ 8,853.77
EXPENSES	$ 72,729,214	$ 60,773,171	$ 45,416,077	$ 39,880,665	$ 44,124,174
Average per Car	$ 8,497.40	$ 8,210.37	$ 7,977.53	$ 8,066.48	$ 8,774.29△
NET EARNING FROM CARS	$ 4,936,860*	$ 2,910,336*	*$ 1,220,034**	*$ 564,426**	*$ 399,643**
TRAFFIC AVERAGES:					
Average Revenue per Passenger	$ 2.65	$ 2.77	$ 2.81	$ 2.87	$ 2.95
Average Net Earning per Passenger	$ 0.17	$ 0.13	*$ 0.08**	*$ 0.04**	$ 0.03
Average Net Earning per Car per Day	$ 1.58	$ 1.08	*$ 0.59**	*$ 0.31**	$ 0.22
Average Mileage per Car Operated	138,297	138,496	140,438	143,760	146,589
Average Journey per Passenger (Miles)	426	430	429	448	456
Average Miles per Car per Day	379	379	384	394	402
Average Loading per Car (Passengers)	10.57	9.65	8.45	8.64	9.35

*Figures in *italics* denote loss.
△Includes Pullman proportion of expense of operation of air conditioning equipment
*After provision for Federal Income Tax.

[Advertisement]

parlor cars for use in high-speed trains for overnight and transcontinental services. At least three complete trains of that kind, including 11 Pullman-owned sleeping cars, will go into operation during 1935, and the manufacturing and sleeping car subsidiaries of your company are prepared to co-operate with the railroads in the development of such new services and equipment therefor.

* * *

Surplus and Reserves

* * *

There have been no charges during the year to the Reserve for Contingencies provided in prior years to cover losses on securities, trade receivables, balances in closed banks, and other credits. Such small losses and gains as were actually realized on items settled during the year have been absorbed in the Income Account of the year. Conditions are still difficult for domestic railroad debtors and for those in foreign exchange-control areas, and there has been appropriated out of Surplus the sum of $350,000 as an addition to the reserve of $3,000,000 previously set up in the general Reserve for Contingencies.

In years prior to 1934 reserves were set up in both the sleeping car and manufacturing subsidiaries against the cost of experimental cars and machinery. During 1934 charges totalling $321,615.93 have been made to write off entirely or reduce to determined value-in-use the book value of such experimental installations.

In the fiscal year 1934, the subsidiary companies continued their regular depreciation charges against earnings, yielding total addition of $11,993,240.27 to Reserves for Depreciation.

* * *

General

Pending restoration of adequate earning power, every effort has been made to achieve operating economies, without impairment of service, deterioration of property, or sacrifice of business position.

* * *

Respectfully submitted on behalf of the Board of Directors,

DAVID A. CRAWFORD,
President.

March 21, 1935.

Annual Report

Canadian Pacific Railway Company

FIFTY-FOURTH ANNUAL REPORT

OF THE

DIRECTORS OF THE CANADIAN PACIFIC RAILWAY COMPANY.

YEAR ENDED DECEMBER 31, 1934.

To the Shareholders:

The accounts of the Company for the year ended December 31, 1934, show the following results:—

Gross earnings	$125,542,954.89
Working expenses (including pensions and taxes)	101,158,931.48
Net earnings	$24,384,023.41
Special income	6,663,793.02
	$31,047,816.43
Deduct fixed charges	24,578,025.55
Balance transferred to profit and loss and surplus revenue account	$6,469,790.88

Profit & Loss and Surplus Revenue Account

Surplus revenue December 31, 1933		$151,993,679.86
Balance of income for the year ended December 31, 1934		6,469,790.88
		$158,463,470.74
Deduct:		
Provision for depreciation of Ocean and Coastal Steamships	$3,783,660.01	
Loss on lines abandoned, property retired and not replaced, and miscellaneous debits	4,767,089.78	
Provision for losses in respect of investment in lines in the United States controlled through stock ownership	4,000,000.00	
		12,550,749.79
Surplus revenue December 31, 1934, as per balance sheet		$145,912,720.95

The operations for the year 1934 show an improvement in the balance available for transfer to Profit & Loss Surplus Revenue Account, the increase being $5,212,630 over the year 1933.

Railway Operations

The results of railway operations in 1934 as compared with 1933 are set out below. The working expenses in both cases include pension disbursements, the figures for 1933 having been restated for this purpose.

	1934	1933	Increase
Gross Earnings	$125,542,954.89	$114,269,688.16	$11,273,266.73
Working Expenses (including pensions and taxes)	101,158,931.48	94,846,393.87	6,312,537.61
Net Earnings	$ 24,384,023.41	$ 19,423,294.29	$ 4,960,729.12

In 1934 the working expenses, including taxes, amounted to 80.58% of the gross earnings, as compared with 83.00% in 1933. Excluding taxes, the ratio was 77.34% as against 79.38% in 1933.

Gross earnings increased $11,273,266, or 9.9%, there being in each month, with the exception of June, an improvement over the corresponding month of the previous year. The increase in passenger earnings was $878,960, or 6.2%, and in freight earnings $9,681,060, or 11.3%. There was a general increase in the principal classes of freight traffic, except grain and grain products which showed a reduction of $1,965,220, or 8.1%, from 1933 to the lowest level of any year since 1914.

The working expenses increased $6,312,537, or 6.7%. The major part of this increase was in maintenance expenses, which were $4,380,832 higher than in 1933. The main locomotive and car repair shops were operated an average of approximately three more days per month than in 1933. Transportation expenses increased $1,958,764, but the ratio to gross earnings improved, being 36.3% as compared with 38.2% in the previous year. An improvement took place in the average freight train loading from 1,515 tons in 1933 to 1,525 tons in 1934, and in the gross ton miles per train hour from 23,849 in 1933 to 24,062 in 1934. The fuel consumption remained at the same level as in 1933, viz., 112 lbs. per 1,000 gross ton miles.

The percentage of deductions from the basic rates of pay applicable to the officers and employees generally, as well as the higher percentages applicable to the senior positions and to the Directors' fees and President's salary, referred to in the last Annual Report, were continued throughout the year.

After careful review of the situation during the later part of the year, your Directors approved a revision of the basis of deductions, effective January 1, 1935; the deduction in the case of officers and employees generally to be 12% until April 30, 1935, and thereafter 10%, with the proviso that after July 1, 1935, in the case of employees whose wages are subject to agreement, thirty days' notice may be served by the Company or the employees of a desire to alter the percentage; for the senior positions the deduction is to be 15%; for the Directors and members of the Executive Committee 20%; and for the President 35%.

Special Income

Special Income was slightly higher than in 1933. Cash dividends totalling $1,009,500 from The Consolidated Mining and Smelting Company of Canada, Limited, are included in the year's accounts. Owing largely to the rise in sterling during the year, there was a net charge to Exchange Account of $521,700 as against a credit of $432,669 in the previous year.

Although still affected by the unfavorable world traffic conditions the net earnings of your Ocean and Coastal Steamships increased $496,509. The Company succeeded in obtaining a substantial share of the business offering which could be served by its Atlantic and Pacific Fleets. In addition to a moderate increase in the regular services, extensive use was made of the vessels of the Atlantic Fleet for cruise purposes. The "Empress of Britain," in addition to making twelve round voyages on the Atlantic, and a short cruise out of New York, again made a successful voyage around the world. The service afforded by this ship has enabled the Company, in the face of most severe competition, to maintain a position in the shipping world which otherwise would not have been possible. The "Empress of France" and the "Metagama" were sold during the year. The "Minnedosa" was not commissioned. Other vessels were laid up for

[Advertisement]

short periods for the usual annual overhaul and repairs. It is a source of satisfaction that no serious accident occurred to any of your ships during the year.

There was a further improvement in the net earnings of the Communications Department amounting to $179,174, and in the net earnings from Hotels of $449,683. Increased commercial and tourist business at your Hotels would seem to indicate that the tide has turned in this important branch of the Company's activities. The increased net earnings of the year serve to illustrate the improvement that may reasonably be expected as patronage returns to more normal levels.

Profit & Loss and Surplus Revenue Account

The full annual depreciation requirement of your Ocean and Coastal Fleets, amounting to $3,783,660, was appropriated for Steamship Replacement.

In the interests of economy the operation of a total of 119.72 miles of second main track on the Algoma District has been discontinued, and the rails and other material have been removed for use on other parts of the system. The necessary adjustments have been made in the Property Investment Account, resulting, after allowing for salvage, in a net charge of $2,736,798 to Profit & Loss and Surplus Revenue Account.

In view of the continued unfavorable results of the operation of your controlled lines in the United States, a sum of $4,000,000 was again appropriated to provide for the possible writing down of the investments in these properties in the future.

Land Surplus Account

Sales of agricultural lands during the year amounted to 120,355 acres for $1,334,343, an average of $11.09 per acre, including 4,554 acres of irrigated land at $43.19 per acre, and the remainder at an average of $9.82 per acre. The Company has continued, through the extension of special concessions, to share with land contract holders the burdens imposed upon them by economic conditions. Following a recent survey of Irrigation Areas, 263,744 acres heretofore classed as irrigated lands have been transferred to non-irrigated, entailing a reduction of $5,937,642 in Land Surplus.

Dividends

Notwithstanding the improvement in the results of the year's operations, your Directors feel that in view of the necessity, under the present unstable financial conditions, of preserving the cash position of the Company they would not be justified in declaring any dividend in respect of the year 1934.

Pensions

Pension disbursements for the year totalled $1,842,300. These were included in the working expenses. During the year 322 employees were pensioned. The total number on the pension roll at December 31, 1934, was 2,591, distributed by ages as follows:—

Under 60 years of age	85
From 60 to 64 years of age inclusive	231
From 65 to 70 years of age inclusive	1,107
Over 70 years of age	1,168
Total	2,591

Capital Expenditures

In anticipation of your confirmation, your Directors authorized Capital Appropriations, in addition to those approved at the last Annual Meeting, aggregating for the year 1934 $841,741. During the year 1934 the retirement of property exceeded the additions and betterments, with the result that investment in railway, rolling stock equipment, lake and river steamers and hotels decreased $3,492,380. Approval is requested for capital expenditures during the present year of $3,316,921. Particulars of the principal items are:—

Replacement and enlargement of structures in permanent form	$ 130,307
Additions and betterments to stations, freight sheds, coaling and watering facilities and engine houses	146,806
Ties, tie plates, rail anchors, ballasting, ditching and miscellaneous roadway betterments	1,799,900
Replacement of rail in main and branch line tracks with heavier section	532,361
Installation of automatic signals	6,320
Additional terminal and side track accommodation	50,955
Additions and betterments to equipment	513,299
British Columbia Lake and River Steamers	6,000
Additions and betterments to hotels	38,452
Ocean and Coastal Steamships	19,972

Finance

Of the $12,000,000 Ten Year 5% Collateral Trust Gold Bonds which matured April 15, 1934, $11,945,300 were redeemed, and an

CANADIAN PACIFIC RAILWAY COMPANY

GENERAL BALANCE SHEET, DECEMBER 31, 1934

Assets

Property Investment:		
Railway, rolling stock equipment, lake and river steamers and hotels	$867,434,589.26	
Ocean and coastal steamships	111,887,174.48	
Acquired securities (cost)	184,267,612.77	
		$1,163,589,376.51
Advances to controlled properties and other investments		23,497,429.64
Investments and Available Resources:		
Municipal securities (cost)	$6,551.94	
Mortgages collectible and loans and advances to settlers	3,488,558.69	
Miscellaneous investments (cost)	34,125,248.03	
Insurance fund investments	8,245,215.58	
Deferred payments on lands and townsites	46,907,819.72	
Assets in lands and properties	46,548,539.30	
		139,321,933.26
Working Assets:		
Material and supplies on hand	$16,158,263.34	
Insurance prepaid	249,227.14	
Agents' and conductors' balances	4,952,407.12	
Net traffic balances	510,118.78	
Accounts due from Dominion, Imperial and United States Governments	611,586.01	
Miscellaneous accounts receivable	5,839,210.55	
Cash on hand	18,369,030.00	
		46,689,842.94
		$1,373,098,582.35

Liabilities

Capital Stock:		
Ordinary stock	$335,000,000.00	
Four per cent preference stock	137,256,921.12	
		$472,256,921.12
Four per cent consolidated debenture stock	$495,911,848.74	
Less: Pledged as collateral to bonds and notes	204,500,300.00	
		291,411,548.74
Bonds and notes	$189,543,000.00	
Less: Securities and cash deposited with trustee of 5% equipment trust	5,349,005.81	
		184,193,994.19
Twenty year 4½% sinking fund secured note certificates (1944)	$30,000,000.00	
Less: Purchased by trustee and cancelled	9,161,300.00	
		20,838,700.00
Current:		
Audited vouchers	$4,088,764.67	
Pay rolls	2,402,924.32	
Miscellaneous accounts payable	2,208,364.16	
		8,700,053.15
Accrued fixed charges		1,488,062.26
Deferred:		
Dominion government unemployment relief	$2,447,222.71	
Miscellaneous	318,674.31	
		2,765,897.02
Reserves:		
For equipment replacement	$8,244,657.87	
For steamship replacement	35,185,167.13	
For insurance	8,245,215.58	
For contingencies and unadjusted balances	9,979,417.07	
For investments	12,000,000.00	
		73,654,457.65
Premium on capital stock sold (Less discount on bonds and notes)		67,169,052.46
Land surplus		104,707,174.81
Surplus revenue		145,912,720.95
		$1,373,098,582.35

E. A. LESLIE,
Comptroller.

Auditors' Certificate:

We have examined the Books and Records of the Canadian Pacific Railway Company for the year ending December 31, 1934, and having compared the above Balance Sheet therewith, we certify that in our opinion it is properly drawn up so as to show the true financial position of the Company at that date, and that the statements of Income and of Profit and Loss and Surplus Revenue correctly set forth the result of the year's operations.

PRICE, WATERHOUSE & CO.,
Chartered Accountants (England).

Montreal, March 8, 1935.

[Advertisement]

amount of $54,700 was deposited with the Trustee to meet the outstanding bonds. The collateral to the issue, consisting of $15,000,000 par value Four Per Cent Consolidated Debenture Stock, was released by the Trustee, and was cancelled.

There were issued and sold during the year $12,000,000 Convertible Fifteen Year 4% Collateral Trust Bonds, secured by pledge of Four Per Cent Consolidated Debenture Stock of the par value of $15,000,000, the holders being given the right at any time up to and including July 2, 1941, to convert their Bonds into shares of the Ordinary Capital Stock of the Company in the ratio of four shares of the par value of Twenty-five Dollars each to each One Hundred Dollars principal amount of the Bonds. The proceeds of this issue were applied towards the repayment to Canadian Banks of $12,000,000 on account of the Five Year Notes, reducing the amount of such Notes outstanding to $48,000,000. Of the Four Per Cent Consolidated Debenture Stock held by the Banks as collateral to the Notes, $19,999,700 par value was released and was cancelled.

Following the downward trend in interest rates on Bank deposits in Canada, the rate of interest on the Company's Five Year Notes held by Canadian Banks was reduced on November 1, 1934, by ½ of 1% per annum, making the rate 4½% per annum.

Loans totalling $2,000,000 were obtained from United States Banks on January 2, 1934, on this Company's short term promissory notes, secured by $4,200,000 par value Four Per Cent Consolidated Debenture Stock. These loans were repaid during the year, and the Debenture Stock was released and was cancelled.

Minneapolis, St. Paul and Sault Ste. Marie Railway Company

The territory served by this system was again visited by a severe drought, and the movement of agricultural products, its principal traffic, was adversely affected. On account of guarantee obligations, and to protect the Company's interests in this property, $4,895,083 was advanced to the Soo Line during the year.

Co-operation with Canadian National Railway Company

Pursuant to the provisions of the Canadian National-Canadian Pacific Act, 1933, extensive joint studies have been carried out by the Company and the Canadian National Railway Company for the purpose of effecting economies and providing for more remunerative operation. Effective at the beginning of the year the terminals at Fredericton, New Brunswick, were consolidated and the staffs amalgamated. The pooling of passenger train services originally put into effect in April, 1933, was extended in March, 1934, to include all the important competitive services between Quebec and Montreal, Montreal and Toronto and Ottawa and Toronto. After extended negotiations an understanding was reached as to the general principles to be applied in arriving at agreements for the elimination of duplicate lines. Agreements have been concluded in respect of two of these cases, and others are now in course of preparation.

In an effort to give further effect to the provisions of the Act, the two Companies prepared Bills authorizing the amalgamation of their Express and Telegraph services. These Bills failed to secure the approval of Parliament, but negotiations have been continued in the hope that some means may be found of overcoming the difficulties in the way of effecting the desired economies in connection with these services.

The total annual joint economy secured by the two Companies from the measures put into effect up to the end of 1934 is estimated to be $1,220,510.

Agreements

Your confirmation and approval will be asked of the following agreements made by your Directors during the past year:—

1. Agreement between your Company and the Canadian National Railway Company, whereby the Canadian National is given the right to use that portion of the line of your Company between Dorval, Quebec, and Windsor Station, Montreal, in connection with the operation of the passenger pool trains between Montreal and Toronto.

2. Agreement between your Company and the Canadian National Railway Company, whereby the freight and passenger facilities and staffs of both companies at Fredericton, New Brunswick, are amalgamated. All freight traffic is handled by a joint staff on the freight facilities of the Canadian National, the cost of operation being divided on a tonnage basis; and all passenger traffic is handled by a joint staff at your station, each company bearing one-half of the cost of operation.

3. Agreement between your Company of the first part, the Canadian National Railway Company of the second part, and the Stanstead, Shefford and Chambly Railroad Company of the third part, whereby the Canadian National is to abandon the operation of the line of the Stanstead Company between Iberville and Farnham in the Province of Quebec, and is to use jointly the line of your Company between these points, paying such amounts and contributing such proportion of the cost of operation and maintenance of your line as will result in an equal division of the net economy resulting from the abandonment.

4. Agreement between the Canadian National Railway Company of the first part, your Company of the second part, and the New Brunswick Railway Company of the third part, whereby your Company is to abandon the operation of the line of the New Brunswick Company between Cyr Junction and Edmundston in the Province of New Brunswick, and is to use jointly the line of the Canadian National between these points paying such amounts and contributing such proportion of the cost of operation and maintenance of the Canadian National line as will result in an equal division of the net economy resulting from the abandonment.

Stock Holdings

The holdings of the Ordinary and Preference Stocks of the Company in December, 1934, were distributed as follows:—

	ORDINARY		PREFERENCE		Percentage of ordinary and preference stocks combined
	No. of holders	Percentage of stock	No. of holders	Percentage of stock	
Canada	30,202	17.26	78	.27	12.23
United Kingdom and other British	21,391	52.50	27,653	98.07	65.99
United States.....	16,603	24.40	34	.58	17.35
Other Countries...	4,545	5.84	202	1.08	4.43
	72,741		27,967		

Changes in Directorate

The Directors deeply regret to report the loss by death during the year of two members of the Board, Mr. W. J. Blake Wilson, of Vancouver, who passed away in June, and Mr. Grant Hall, of Montreal, who died in August.

Mr. Wilson had been a Director of the Company for seven years, and Mr. Hall, who had served continuously in official positions of progressive importance from the time of the Company's incorporation, had since 1918 been its senior Vice-President and a member of the Board and of the Executive Committee.

Mr. D'Alton C. Coleman was appointed to succeed the late Mr. Hall as Vice-President and as a Director and member of the Executive Committee, and the vacancy created by Mr. Wilson's decease was filled by the appointment of Mr. Morris W. Wilson, President of The Royal Bank of Canada.

Retiring Directors

The undermentioned Directors will retire from office at the approaching Annual Meeting. They are eligible for re-election:—

COLONEL HENRY COCKSHUTT
SIR HERBERT S. HOLT
COLONEL F. S. MEIGHEN, C.M.G.
MR. ROBERT C. STANLEY

Your Directors desire again to express their grateful appreciation of the unfailing loyalty and devotion to the Company's interests shown by the officers and employees of all classes.

For the Directors
E. W. BEATTY
President.

MONTREAL, March 11, 1935.

[Advertisement]

News (Financial)

(Continued from page 516)

presented the financial situation of the Canadian National in part as follows:

The amount required in cash from the Dominion Treasury for deficit of the Canadian National decreased by $10,500,000 in 1934, as compared with 1933. Increased earnings, on the one hand, and decrease in the charges for exchange involved in payment of interest abroad, were the main factors in this improvement. Gross earnings were greater by $16,400,000, or 11%, and while operating expenses were somewhat larger than the estimated figures presented in the railway budget, the outcome on the whole was slightly better than anticipated at the beginning of the year. The amount required for deficit, after payment of interest due the public, and taken into the accounts of the Dominion as an expenditure for the year, amounted to $48,400,000, as compared with $58,900,000 in 1933. While this reduction in the deficit affords a very welcome relief to the treasury and tax-payer, the deficiency which still remains is of such proportions as to constitute a most serious drain on our resources.

Actually the books of the company show a loss in 1934 of $89,600,000. This figure can be reconciled with the amount of our payment by deducting $36,000,000 for accrued—but unpaid—interest on government advances and $5,200,000 for various

charges not involving cash outlay on the part of the railway.

In addition to provision for the deficit, the Dominion furnished by way of loan $579,000 for capital expenditures and $10,170,000 for retirement of miscellaneous maturing debt, making a total paid on all accounts in respect of the operations in the year 1934, of $59,100,000. The budget of the railways, as presented to Parliament, provided for a total amount of $65,200,000. It will be seen, therefore, that the net requirements for the year were $6,000,000 less than estimated, accounted for mainly by savings in capital expenditures.

FINANCIAL REQUIREMENTS

	Actual 1934	Budget 1934	Actual 1933
By Cash:			
Deficit—			
System (ex eastern lines)	$42,589,825	$43,240,298	$52,263,819
Eastern lines	5,818,076	5,600,000	6,691,569
	48,407,901	48,840,298	58,955,388
Capital expenditures	578,991	4,202,007	1,958,116
Debt retirement	10,170,618	12,185,828	11,269,985
	59,157,510	65,228,133	72,183,489
Less working capital available	.....	.....	5,000,000
Total	$59,157,510	$65,228,133	$67,183,489
By Guarantee:			
1934 Long term refunding (maturities $20,573,583)	$20,500,000	$20,500,000	.....

CHICAGO & NORTH WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a part of a branch line extending from What Cheer, Iowa, to the end of the line 2.4 miles of Consol—a total of 55 miles.

CHICAGO GREAT WESTERN.—*Abandonment and Trackage Rights.*—The Interstate Commerce Commission has authorized this company to abandon 6.3 miles of line between a point 1.3 miles east of Horton, Minn., and a point near its freight station at Dover, and 7.6 miles of line between its freight station at Dover and a point 1.7 miles west of its freight station at Utica; to operate under trackage rights over 17.1 miles of the line of the Chicago & North Western between a point near Planks and a connection of the two railways near Utica; and to construct 2,480 ft. of connecting tracks.

CHICAGO GREAT WESTERN.—*Protective Group.*—A protective committee for Chicago Great Western first mortgage 4 per cent bonds due 1959 has been formed with H. C. Hagerty, assistant treasurer of the Metropolitan Life Insurance Company, as chairman. The members of the committee are said to represent directly and indirectly holders of approximately $5,000,000 of these bonds, or in excess of 14 per cent of the total amount outstanding.

CHICAGO UNION STATION.—*Bonds.*—An issue of $16,000,000 of 4 per cent, Series D, bonds due 1963 is being offered by a syndicate composed of Kuhn Loeb & Co., Lee Higginson Corp., Brown, Harriman & Co., Edward B. Smith & Co., Field Glore & Co., and the First Boston Corp. The bonds are priced at 101, to yield 3.94 per cent, and are guaranteed by the proprietary companies. The proceeds will be used, together with funds derived from the sale of another issue of $2,100,000 of 4 per cent bonds, to call and redeem at 110 an issue of $16,000,000 of 6½ per cent, Series C, bonds due 1963.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Pledges Equity with R. C. C.*—The Interstate Commerce Commission has authorized this company to pledge with the Railroad Credit Corporation as collateral security its equity in $6,000,000 of first and refunding mortgage 6 per cent, Series A, bonds now pledged with the Reconstruction Finance Corporation.

DULUTH, SOUTH SHORE & ATLANTIC.—*Bonds.*—The Interstate Commerce Commission has authorized the Marquette, Houghton & Ontonagon to extend the maturity date of $1,400,000 of its 6 per cent 40-year mortgage bonds from April 1, 1935, to April 1, 1937—the D. S. S. & A. assuming liability for principal and interest of the bonds so extended.

LEHIGH VALLEY.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 22 miles of branch line between Spencer, N. Y., and Ithaca.

LEHIGH VALLEY.—*R. C. C. Loan.*—The Interstate Commerce Commission has authorized this company to pledge and repledge $2,600,000 of Consolidated Real Estate Company mortgage bonds as collateral security for two promissory notes totaling $1,100,000 to the Railroad Credit Corporation.

LOUISVILLE & NASHVILLE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Heidelberg, Ky., to Ida May, 3 miles.

MINNEAPOLIS & ST. LOUIS.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon the line between Martinsburg, Ia., and Junction Switch, 22.4 miles.

MISSOURI-KANSAS-TEXAS.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $6,000,000 to pay bond interest and taxes due in 1935.

NORTH & SOUTH.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and its receiver to abandon as to interstate and foreign commerce its entire line extending from Illco, Wyo., to Salt Creek, 41 miles.

NORFOLK & WESTERN.—*Bonds.*—The directors of this company have voted to call for redemption on July 1 an issue of $34,668,000 of division first lien and general mortgage 4 per cent bonds due 1944. The call price is 105. No new securities will be issued. The redemption will be effected in part from cash and in part from bank loans. Payment of the bonds will reduce the company's funded debt to 25 per cent of its outstanding capital. After this issue is called, the company will have no securities maturing until 1989.

New Director.—W. J. Jenks, vice-president in charge of operation, has been elected a director to succeed R. K. Mellon, resigned.

PENNSYLVANIA.—*Annual Report.*—The 1934 annual report for the Pennsylvania Railroad Company shows net income, after interest and other charges, of $18,815,693, a decrease of $465,475 as compared with net income in 1933. Selected items from the income statement follow:

Average Mileage	1934	Increase or decrease compared 1933
Operated	10,470.57	40.88
RAILWAY OPERATING REVENUES	$343,668,699	+$18,952,885
Maintenance of way	30,288,323	+3,917,691
Maintenance of equipment	66,059,375	+3,205,716
Transportation	122,719,249	+9,586,514
TOTAL OPERATING EXPENSES	248,786,108	+22,017,761
Operating ratio	72.4	+2.8
NET REVENUE FROM OPERATIONS	94,882,590	−3,064,875
Railway tax accruals	23,731,426	−728,173
Railway operating income	71,015,178	−2,352,237
Hire of equipment—Dr.	8,174,473	−1,459,912
Joint facility rents—Dr.	1,523,689	232,481
NET RAILWAY OPERATING INCOME	61,317,015	−659,843
Non-operating income	40,013,891	−1,605,708
GROSS INCOME	101,330,906	−2,265,551
Rent for leased roads	51,472,565	−442,887
Interest on funded debt	28,413,477	+145,338
TOTAL DEDUCTIONS FROM GROSS INCOME	82,515,213	−1,800,075
NET INCOME	$18,815,693	$465,475

SHEARWOOD.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Claxton, Ga., to Nevils, 12.34 miles.

SOUTHERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a part of a branch line extending from Clavicle, Calif., to Springville, 2.4 miles.

UNION PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized the Oregon-Washington to abandon a part of a branch line extending from one mile north of Enaville, Idaho, to Pritchard, 20.6 miles.

WABASH.—*Bridge Bonds.*—The Interstate Commerce Commission has authorized this company and its receivers to assume liability as guarantors for $2,350,000 of first mortgage 4 per cent serial bonds of the Wabash-St. Charles Bridge Company.

Average Prices of Stocks and of Bonds

	Mar. 26	Last week	Last year
Average price of 20 representative railway stocks..	28.58	28.71	44.63
Average price of 20 representative railway bonds..	71.07	71.35	77.77

Dividends Declared

Atlantic Coast Line.—Preferred, $2.50, payable May 10 to holders of record April 26.

Cleveland, Cincinnati, Chicago & St. Louis.—Preferred, $1.25, quarterly, payable April 30 to holders of record April 20.

Elizabeth & Trenton.—$1.00, semi-annually; Preferred, $1.25, semi-annually, both payable April 1 to holders of record March 20.

Norfolk & Western.—Adjustment Preferred, $1.00, quarterly, payable May 18 to holders of record April 30.

Richmond, Fredericksburg & Potomac.—7 Per Cent Guaranteed, $3.50, semi-annually; 6 Per Cent Guaranteed, $3.00, semi-annually, both payable May 1 to holders of record April 30.

This advertisement appears as a matter of record only and is not an offer to sell these bonds. All these bonds have been sold by the undersigned and their associates to registered security dealers and others.

$16,000,000

Chicago Union Station Company

First Mortgage 4% Bonds, Series "D"

Due July 1, 1963

Unconditionally guaranteed by endorsement as to both principal and interest jointly and severally, by Chicago, Burlington & Quincy Railroad Company, Chicago, Milwaukee, St. Paul and Pacific Railroad Company, The Pittsburgh, Cincinnati, Chicago and St. Louis Railroad Company and The Pennsylvania Railroad Company.

All but not any part of Series "D" Bonds may be redeemed at the option of the Company on any interest date on and after July 1, 1940 at 105% and accrued interest on ninety days' notice.

CONTINENTAL ILLINOIS NATIONAL BANK AND TRUST COMPANY OF CHICAGO, Trustee.

The issue and guaranty of the above Bonds and their sale to the undersigned and their associates are subject to the approval of the Interstate Commerce Commission and all legal proceedings in connection with the issuance and sale thereof to the approval of counsel for the undersigned.

In the opinion of counsel these Bonds will be legal investments for savings banks in New York, if the bill now pending in the New York Legislature similar to the bills enacted in 1932, 1933 and 1934 is enacted. The New York law provides that up to April 1, 1935, the years 1931, 1932 and 1933 shall be excluded in determining whether railroad corporations have complied with the requirements of the Act. The bill now pending would extend the period to April 1, 1936, and also exclude the year 1934.

Copies of the circular dated March 28, 1935, describing these bonds and giving information regarding the Company may be obtained from the undersigned on request.

OFFERING PRICE 101% AND ACCRUED INTEREST TO DATE OF DELIVERY, TO YIELD 3.94% TO MATURITY.

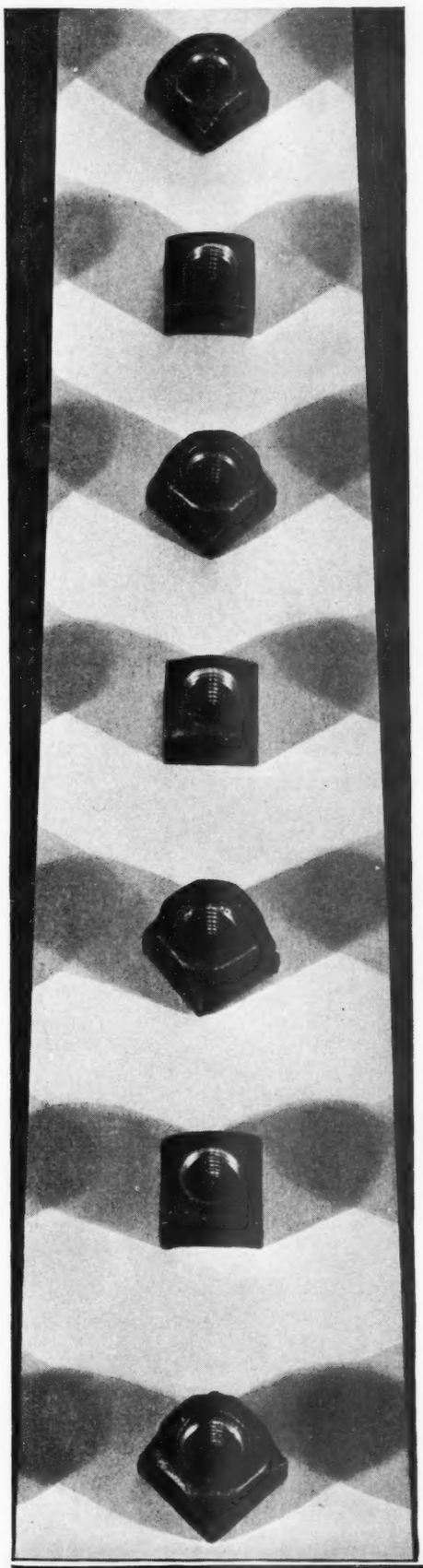
Temporary bonds, exchangeable for definitive bonds when ready for delivery, may be delivered in the first instance. The Company has agreed to make application in due course to list these bonds on the New York Stock Exchange.

Kuhn, Loeb & Co.

Lee Higginson Corporation **Brown Harriman & Co.** Incorporated

Edward B. Smith & Co. **Field, Glore & Co.** **The First Boston Corporation**

New York, March 29, 1935.



The **NUT** *for* RAILROAD EQUIPMENT AND TRACK TODAY

The trend in all materials that enter into railroad equipment and track is toward greater stamina to measure up to the demands of this new, faster-stepping era in railroading. Wheels of wrought steel; connecting rods, boiler plates, engine bolts of alloy steel; heat-treated track bolts—all are a part of this transition to higher levels of strength and endurance.

The Bethlehem Hot-Forged Nut brings nuts into line with other items. It has rugged strength to match that of the stronger, tougher bolts now being used. Severe wrenching stresses, the pounding that results from the fast operation of heavy equipment, don't bother these nuts. Each is an individual forging, with the close-knit, sinewy toughness that forging imparts. Splitting, rounding out and mushrooming are unknown. Wherever you want a nut with staying power use the Bethlehem Hot-Forged Nut.

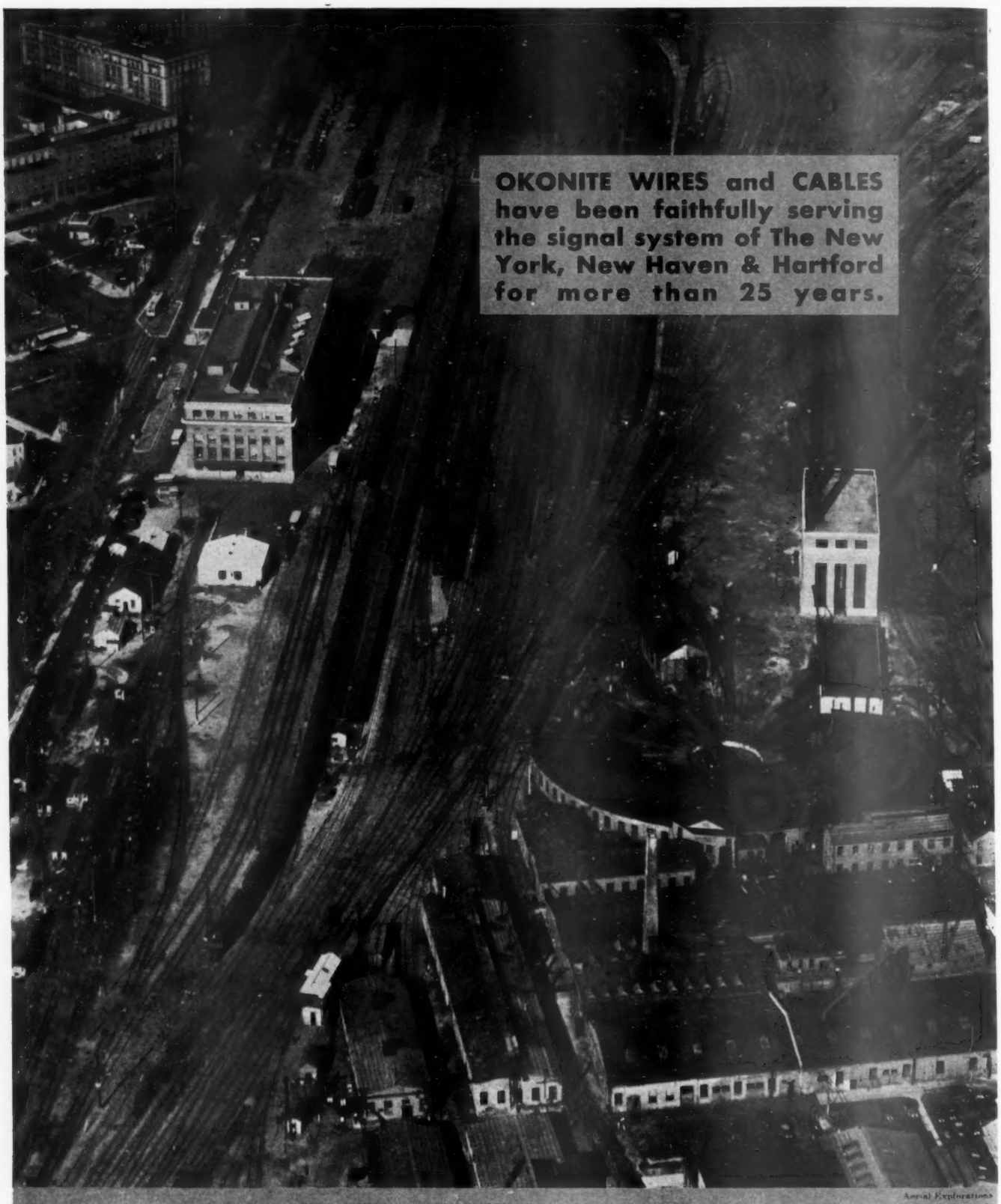
Our Lebanon, Pa., Plant also makes the well-known Bethlehem Heat-Treated Track Bolt and a complete line of related products for railways, including: Frog bolts, engine bolts and stay bolts, corrosion-resisting bolts, track spikes made from new-billet steel, rivets and turnbuckles, together with all special products to meet railway requirements.

Bethlehem District Offices are located at Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Kansas City, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, St. Paul, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Seattle, Los Angeles, Portland, Honolulu. *Export Distributor:* Bethlehem Steel Export Corporation, New York.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

GENERAL OFFICES: BETHLEHEM, PA.


OKONITE WIRES and CABLES have been faithfully serving the signal system of The New York, New Haven & Hartford for more than 25 years.

Aerial Explorations

THE OKONITE COMPANY

Founded 1878

THE OKONITE-CALLENDER CABLE COMPANY, Inc.

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SAN FRANCISCO LOS ANGELES SEATTLE DALLAS

GENERAL ELECTRIC SUPPLY CORP., BOSTON, MASS.

A NEW BALDWIN LOCOMOTIVE FOR COLOMBIA

General Specifications

Gauge of track 3' 0"
Cylinders (4) 17" x 22"
Steam pressure 205 lb.
Drivers diam. 40"
Weight on drivers 249,450 lb.
Weight, total 288,450 lb.
Tractive force 55,500 lb.

In February, 1935, Baldwin completed this single-expansion, articulated locomotive for the Girardot-Tolima-Huila division of the National Railways of Colombia.

This locomotive is Baldwin's answer to one of Colombia's most pressing problems: namely, connecting the head-waters of the Magdalena River with the Bogota plateau up the 4½% grades and sharp curves of a 36" gauge railway.

The first Baldwin locomotive for service in Colombia was shipped from Philadelphia in 1889, to be followed by more than 150 additional locomotives throughout the years.

It takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS
PHILADELPHIA, PENNA.

"You won't mind this trip to Boston—the train is

AIR-CONDITIONED"

★

. . . and the cool comfort of his train, the new **"FLYING YANKEE,"** *is provided by* **"FREON,"** *a safe refrigerant . . .*

THE Boston and Maine's new streamline, stainless steel train was the first of its type to be placed in regular service in the East. For complete air-conditioning comfort, it was equipped with a mechanical system employing "Freon," a safe and ultra-efficient refrigerant.

In recent years, there has been a marked increase in passenger traffic on such famous trains as the Capitol and National Limited; the 20th Century; the George Washington; and many other aristocrats of the rails. Travelers have been quick to show their preference for these crack flyers, which are mechanically air-conditioned.

Today, over 99% of all mechanically air-conditioned trains use "Freon." Railroads have adopted this refrigerant because it is safe, non-toxic and non-flammable, and assures maximum comfort for passengers at all times.

KINETIC

FREON

REG. U. S. PAT. OFF.

a safe refrigerant

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

STEEL
Again sweeps
TRANSPORTATION FORWARD

DESTINED to revolutionize the economics of weight reduction, U S S High Tensile Steels are the culmination of the most extensive research and engineering, which have brought forth such remarkable, high-strength, highly corrosion-resistant alloys as U S S COR-TEN and U S S 18-8—to mention but two of the several grades in the series.

Safe reductions in dead weight results automatically in lower costs of operation. Maintenance costs are controlled by using strong materials that resist atmospheric corrosion, impacts, and abrasion. Investigate U S S High Tensile Steels, and their applications.

USS High Tensile Steels are supplied in plates, shapes, bars, strip, sheets, rods, wire and wire products, pipe and tubular products. Literature and complete information will be sent upon request.

The atmospheric corrosion resistance of U S S COR-TEN is based upon ACTUAL TESTS extending over a period of years in several different atmospheres. Our statements are based on this actual experience, rather than on accelerated or laboratory tests.

Address the Following Manufacturing Companies:

AMERICAN SHEET AND TIN PLATE COMPANY, *Pittsburgh* **TENNESSEE COAL, IRON & RAILROAD COMPANY,** *Birmingham*
AMERICAN STEEL & WIRE COMPANY, *Chicago* **COLUMBIA STEEL COMPANY,** *San Francisco*
CARNEGIE STEEL COMPANY, *Pittsburgh* **ILLINOIS STEEL COMPANY,** *Chicago* **NATIONAL TUBE COMPANY,** *Pittsburgh*

Pacific Coast Distributors—COLUMBIA STEEL COMPANY, San Francisco, Calif. *Export Distributors*—UNITED STATES STEEL PRODUCTS CO., New York, N. Y.

United States Steel Corporation Subsidiaries

USS HIGH TENSILE STEELS

FIVE
Sound Reasons

Why Diamond "S" Brake Shoes Pattern C-50 Should be Used on Freight Cars

1—To eliminate one pattern, C-40.

2—To reduce by 40% the number of freight car brake shoes purchased, distributed, applied, and removed.

3—To reduce by 31% the tonnage of freight car brake shoes now being purchased.

4—To reduce by 8¾% the railroads' annual bill for freight car brake shoes.

5—To economize in the labor of handling and applying new brake shoes and the handling of scrapped brake shoes.

THE AMERICAN BRAKE SHOE AND FOUNDRY COMPANY

230 PARK AVE., NEW YORK
332 SO. MICH. AVE., CHICAGO

POSITIVE VALVE IDENTIFICATION *at all times assured*

For the convenience of Walworth Valve users, we are now supplying all Walworth Quality Valves with an aluminum marking plate, giving the figure number of the valve, the plate being placed directly under the hand wheel nut, as shown in photograph. The valve illustrated is the Walworth Fig. 95, with the now famous lock-on slip-off disc holder, which was originated and perfected by Walworth to save time and trouble in changing discs. It also has the union bonnet connection recognized by valve users as being the best type of bonnet connection.

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VALVES FITTINGS and TOOLS
Backed by 91 Years' Service

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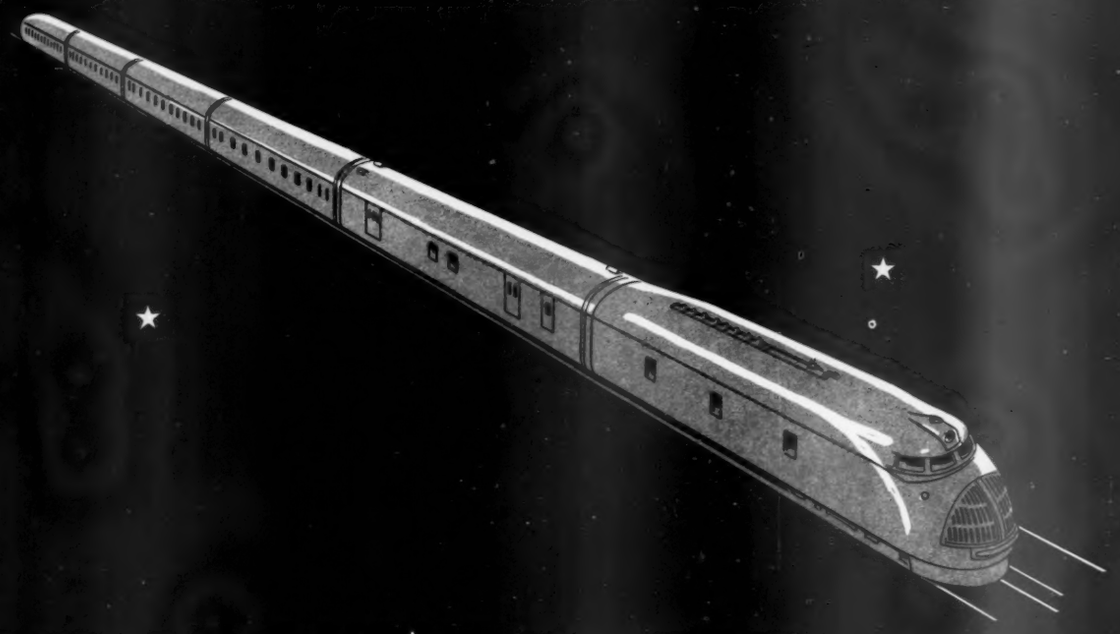
SPEED WITH ECONOMY AND SAFETY



A TRIPLE DEMAND FOR THE LIGHT WEIGHT OF ALUMINUM

ALCOA

From every section of the country come reports of faster passenger schedules, and of gratifying public reaction. Congratulations! That's good merchandising.

What's more, railroad men are recognizing that the real and lasting medicine for operating revenue is to couple speed with radical economy in operation, without sacrificing safety.

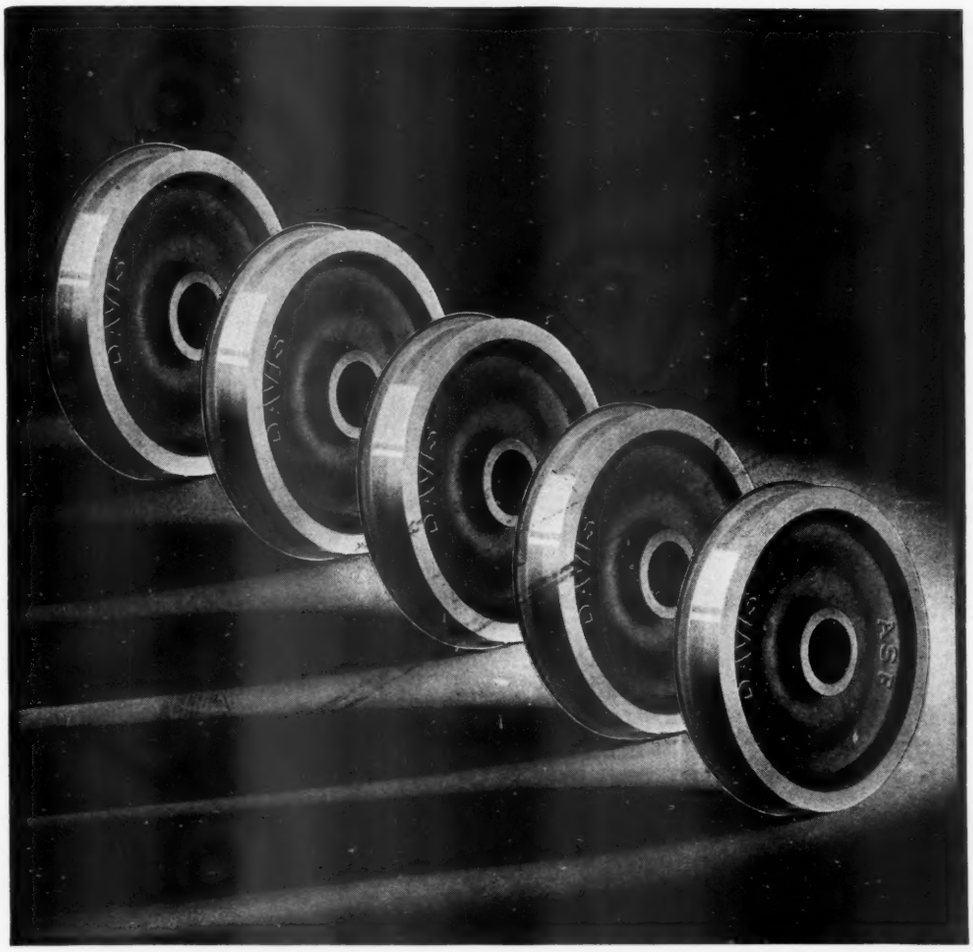
And that is an unmistakable call for equipment made of lighter, structural materials. You collect your revenue by the passenger, but you pay your operating costs by the ton.

Saving weight with Alcoa Aluminum is safe and sound engineering. The basic metallurgy of Aluminum lends itself to the economical formation, by extrusion, of weight-saving shapes. By straightforward combinations of such shapes with standard sections and plates of Aluminum, great weight reductions are accomplished without sacrificing thickness.

Nature made Aluminum light. Designing with Aluminum calls for no compromise with structural stiffness on which continuing safety is based.

Whatever your interest in this important development, our experience is at your disposal. ALUMINUM COMPANY OF AMERICA, 1878 Gulf Building, Pittsburgh, Pa.

ALCOA ALUMINUM



DAVIS HEAVY SERVICE STEEL WHEEL

SAFE ••• DEPENDABLE ••• ECONOMICAL

Made of heat treated steel especially adapted to resist wear and abrasion. Will carry the heavy loads of high capacity, high speed locomotive tenders with comparative freedom from shellouts, brake burns and other tread disintegration defects. A wheel having sufficient thickness of rim metal to permit several wears.

◆ ◆ ◆ ◆ ◆

AMERICAN STEEL FOUNDRIES

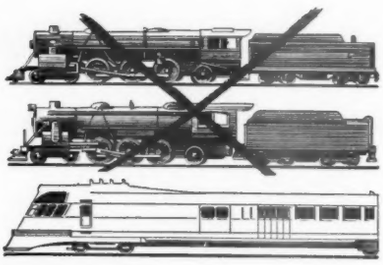
NEW YORK CHICAGO ST. LOUIS

6 SIX LESSONS IN PROFITABLE, LIGHT-WEIGHT RAILWAY OPERATION

The Burlington Zephyr, during 98,560 miles of continuous travel, has demonstrated its ability to earn at least $98,000 per year* more than the steam equipment which it replaces. ($45,000 in increased revenue, $53,000 saved by lower operating expense.) Placed in regular operation November 11, 1934, this light-weight train is proving its efficiency and practicability in every way.

LESSON No. 2 GREATER AVAILABILITY

On the run between Kansas City and Omaha, Nebraska—a daily round trip of more than 500 miles—the Zephyr replaced, not one, but two steam trains which had been operating on the same run normally. 109 tons doing the work of 809 tons.



* *Statistics from a report by Coverdale & Colpitts, Consulting Engineers, New York City. On receipt of your name and address we shall be pleased to send you a copy.*

The fine performance of the Zephyr—a Budd-built, light-weight, high-speed train—has proved beyond question one paramount fact: That the Budd system of fabrication—high-tensile, stainless steel, "Shotweld"—is the only proved way to greater profits through increased passenger traffic and lower operating costs.

SPEED WITH SAFETY

EDW. G. BUDD MANUFACTURING COMPANY

RAILWAY DIVISION—PHILADELPHIA

Dependable Batteries

Cost Least per Year!

•

Outstanding reliable performance is the chief characteristic of the Edison Battery.

No other battery made in this country can compare with it — because none other is made like it. It is the *only* steel battery.

Railroad service demands dependability.

The Edison delivers it.

Yet when all costs are taken into consideration, the Edison on a per year basis is by far the most economical battery your road can use.

. . . . . And, authorizing expenditure for Edison Batteries means "protection on price" for a decade or more to come.

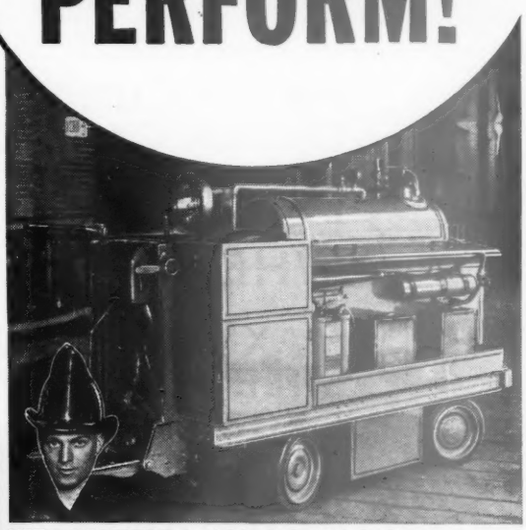
•

Edison storage Battery

Division of Thomas A. Edison, Inc., W. Orange, N. J.

PROGRESS! 13 years before Napoleon met defeat at Waterloo, chemists discovered that acid, in attacking metal, set up an electrical current. More than 100 years later, Thomas A. Edison invented a new, improved and alkaline storage battery — and this alkaline solution preserves its steel plates.

ALKALINE BATTERIES PERFORM!



FIRE-FIGHTER in Ohio industrial plant powered by an Edison Alkaline Battery. No "acid" condition in the Edison Battery . . . lasts longer, costs less . . . powers more industrial trucks than all other kinds combined.

LIGHTHOUSES require storage batteries that offer dependability to the *n*th degree. Is it any wonder that Edison Nickel-Iron-Alkaline Batteries are used. No "acid" in them to attack the plates.

• • •

ONLY NICKEL-IRON-ALKALINE BATTERY made in the United States is that which bears the signature of the inventor. The Edison Battery is a product of Thomas A. Edison, Incorporated, West Orange, N. J.

GRIFFIN CHILLED TREAD WHEELS

AN ACCURATE CHECK OF WHEELS UNDER CARS OF HIGH SPEED EXPRESS FREIGHT TRAINS SHOW 98 PER CENT EQUIPPED WITH CHILLED TREAD WHEELS.

MAXIMUM SPEEDS FROM 50 TO 60 MILES PER HOUR EQUAL TO OR IN EXCESS OF MOST PASSENGER TRAIN OPERATIONS.

SCHEDULES MAINTAINED.

WHEEL SERVICE HIGHLY SATISFACTORY.

THE FOOD SUPPLY OF THE NATION IS CARRIED ON CHILLED TREAD WHEELS

GRIFFIN WHEEL COMPANY

410 NORTH MICHIGAN AVENUE CHICAGO, ILLINOIS

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Reduce Costs and Build Traffic with Diesel-Electric Motive Power

General Electric drive powers Lackawanna's 20 Diesels

24 Hours on ½ ton of fuel

DIESEL-ELECTRIC switching locomotives average 5.75 gallons (42 lb.) of fuel an hour — this, figured at 4¢ a gallon, is only $5.52 for 24 hours of actual service. Maintenance is about 60 cents an hour; the availability, 85 per cent. Many of these locomotives actually operate 80 per cent of the calendar hours of a year.

Such operating results as these have led the Lackawanna to buy four more Diesel-electrics. These, now being completed in our Erie Works, make a total of 20 for this railroad* — all of which have General Electric drive.

Diesel-electric motive power with G-E equipment will reduce operating expense in all types of service — main-line passenger and freight locomotives, streamlined trains, conventional rail motor cars, switchers. Motive-power units of each of these types, using General Electric drive, are now in service or under construction.

**Of Lackawanna's 20 Diesels, 6 are 600-hp. units as pictured above, 10 others are also 600-hp., 2 are 300-hp., and 2 are 300-hp. 3-power units using a Diesel, battery, or 3000-volt trolley power source.*

250-6

GENERAL ELECTRIC

★

9 Sturtevant FANS

REG. U.S. PAT. OFF.

for Pennsylvania's New Newark Station

ANOTHER achievement in modern design and construction, and another ventilating problem successfully solved with Sturtevant ventilating equipment.

Here, 7 Sturtevant Silentvane Fans serve in exhaust service, and 2 serve the supply system. 2 Sturtevant Air Washers also serve in connection with the supply fans, spraying the incoming air with 1070 gallons of water per minute.

The fans move a total of 218,060 cu. ft. of air per minute, 102,360 c. f. m. being fresh air supply and the remainder exhaust. One of the exhaust fans for the battery room is made entirely of monel metal to withstand the corrosive fumes the fan is to handle.

Sturtevant Air Conditioning for Railroads

Over 2500 cars on 19 railroad systems now are equipped with Sturtevant Fans and Cooling Coils, individually or in combination, for air conditioning purposes.

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B. F. STURTEVANT COMPANY, Hyde Park, BOSTON, MASS.
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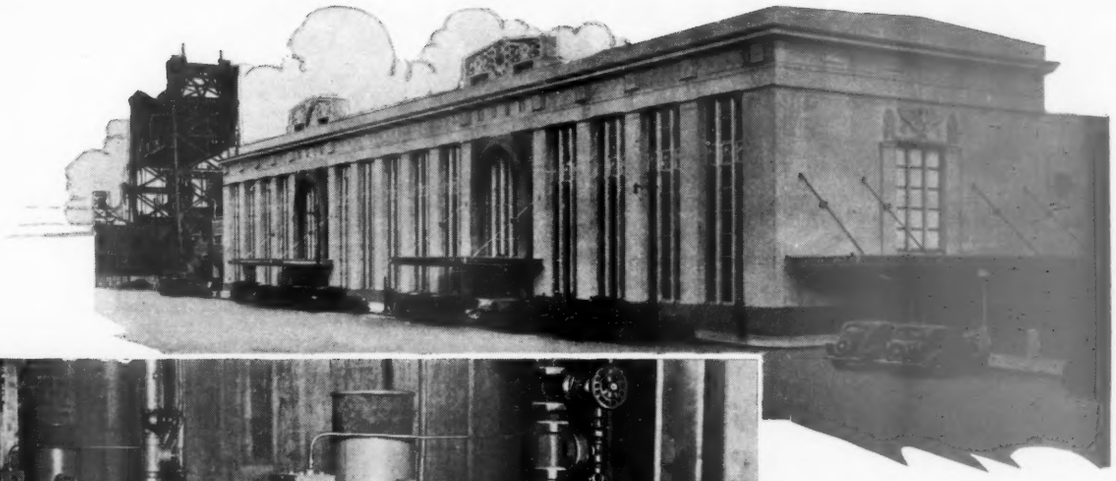

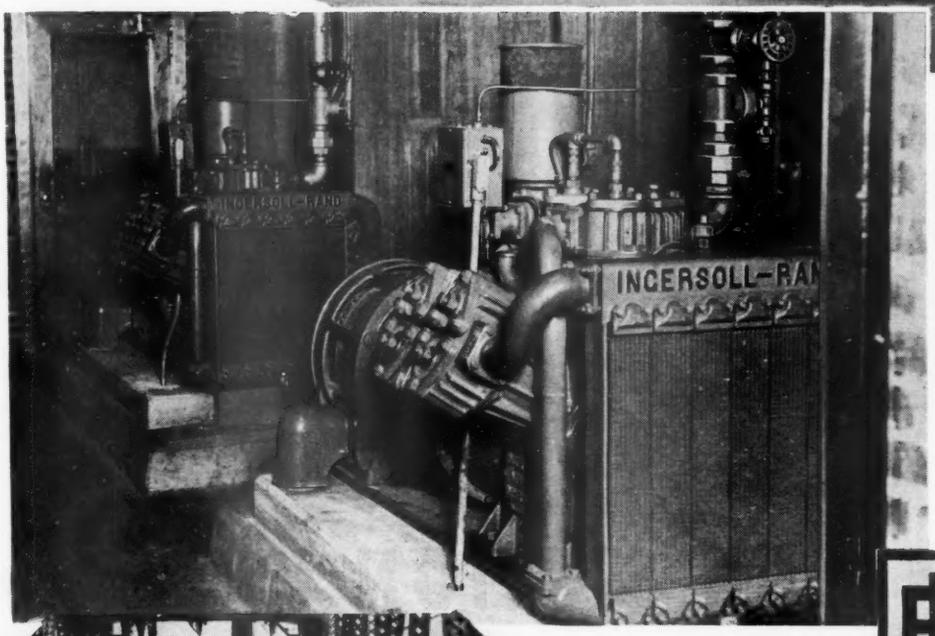

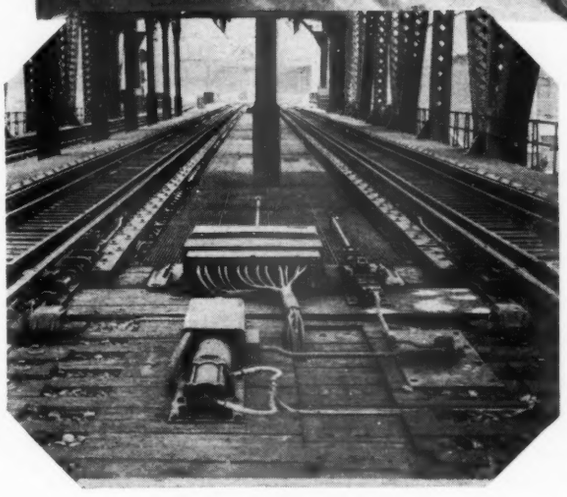

MOTOR COMPRESSORS
IN THE
NEWARK IMPROVEMENTS
OF THE PENNSYLVANIA R. R.

INGERSOLL-RAND Motor Compressors provide an economical as well as dependable supply of air for the electro-pneumatic interlocking throughout the new Newark Station area, and supply the air for the operation of controllers and locks on the 2500 ton, 3-track lift span bridge over the Passaic River.

These two 225 cu. ft. I-R two-stage air-cooled Air Compressors with built-in motors, combine such important advantages as sustained high efficiency, durability, compactness and accessibility. Air-cooling makes them immune to damage from freezing weather, and two-staging insures more durable trouble-free non-carbonizing valves.

I-R Motor Compressors can be furnished in sizes of 20 to 50 hp.; 113 to 310 c.f.m. piston displacement.

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Butte
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Detroit
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Newark
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New York
Philadelphia
Picher
Pittsburgh
Salt Lake City
San Francisco
Scranton
Seattle
St. Louis
Washington

121-5

FORMICA DOORS

THRUOUT THE PENN. STATION AT NEWARK!

» » » FORMICA doors in red and gray refinishing stock were used for all of the main exits and entrances of the new Pennsylvania Station at Newark, N. J.

Similar doors were also installed about a year ago in the Pennsylvania Station, New York. They are made with a type of Formica sheet that is uniform in color and texture throughout its entire thickness, and will therefore maintain its original appearance indefinitely in spite of vigorous wear.

These doors were made by veneering Formica sheet on wood cores. Steel fireproof doors can also be surfaced with Formica for locations where fire regulations require it.

Many of the new trains are being equipped with Formica blisterproof table tops, window stools and other parts. Write for the facts.

THE FORMICA INSULATION CO.
4672 SPRING GROVE AVENUE . . . CINCINNATI, OHIO

FORMICA

FOR BUILDING PURPOSES

CHILLED CAR WHEELS

and the

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

Modern equipment and materials are a necessity if competition and new economic conditions are to be met successfully and profitably.

Properly designed CHILLED CAR WHEELS will fulfill any service condition.

The Association of Manufacturers of Chilled Car Wheels is wholly for keeping the CHILLED CAR WHEEL in advance of any service requirement.

Designed to get the best distribution of metal for service and to resist thermal strains, plus experiments and tests in its own laboratories, the Association of Manufacturers of Chilled Car Wheels solves any such problems as may present.

Our members will be pleased to confer with you and solve your wheel problems.

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ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS
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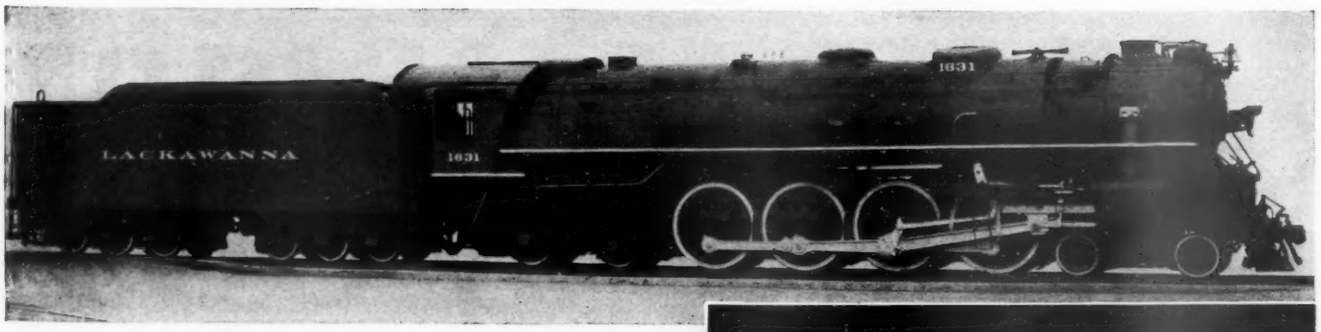
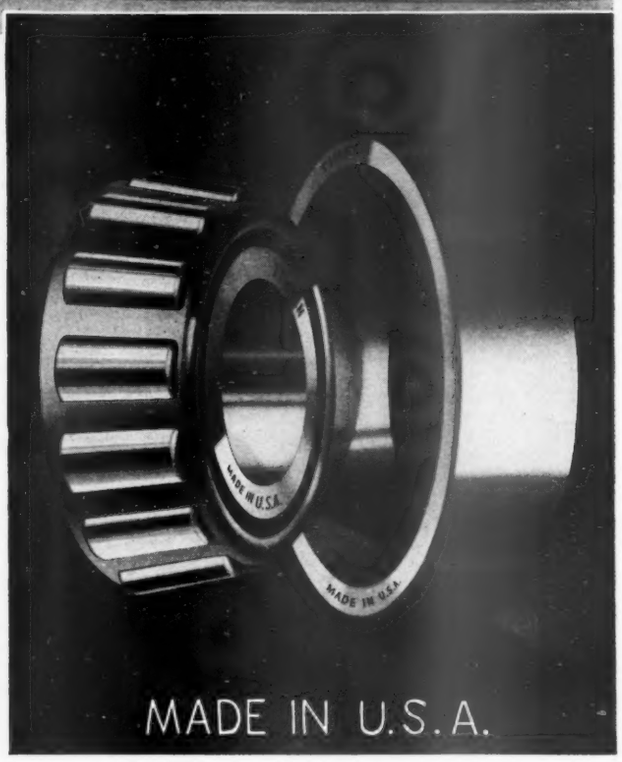


Two-Thirds More Locomotive Miles in 26 Months . . .



TIMKEN EQUIPPED

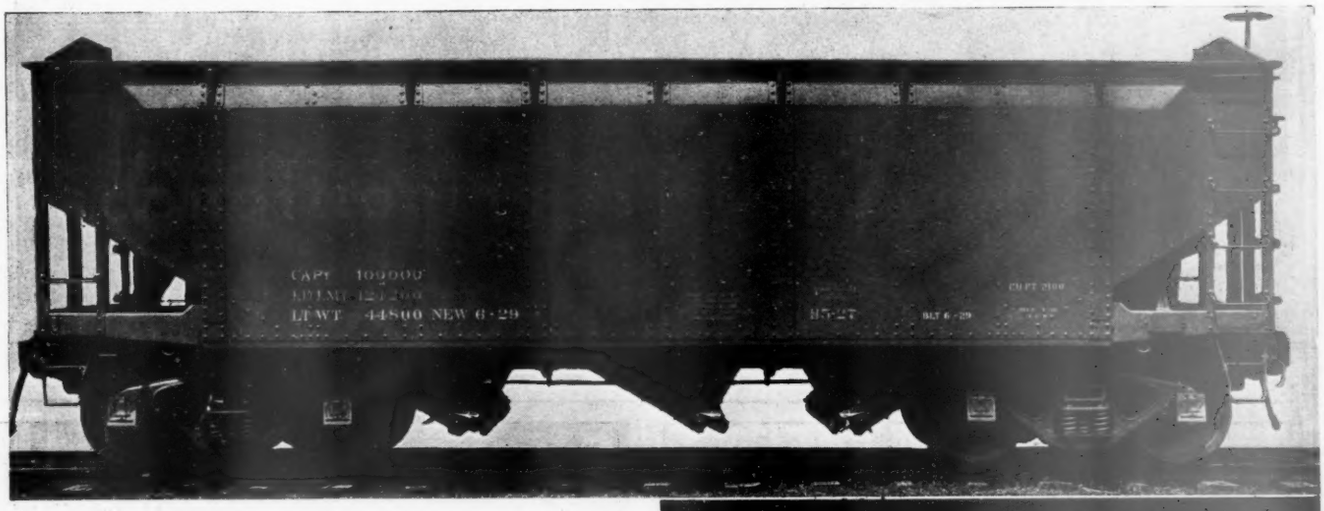
Accurate mileage records kept by the Lackawanna Railroad for 26 months show that 2 completely Timken-equipped locomotives averaged 66.1% greater mileage than 28 plain bearing locomotives over a service period of 26 months.

All 30 locomotives are of the same type — class 4-8-4 — and are exactly similar in all respects apart from the bearings. This remarkable performance proves the greater availability of Timken-equipped locomotives resulting from the elimination of out-of-service periods due to bearing troubles and replacements, plus the radical reduction of lubrication time.

It is the main reason why 18 out of 20 new Lackawanna class 4-8-4 completely anti-frictionized locomotives built in 1934 went on Timken Bearings. Timken service invariably brings repeat orders.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *TAPERED ROLLER* **BEARINGS**



General Reconditioning Adds YEARS— The "AB" Brake adds VITALITY

WITH cars as with men—the value of life is not so much measured by the calendar as by the character. Not how long, but how well—that is the chief criterion. . . . Cars are reconditioned to give them a new lease on life—to extend their years of usefulness. But to enhance that life is more significant . . . . When the rebuilding programme includes installation of "AB" Brakes a marked increase in vitality is imparted to perpetuated life . . . . Every car so equipped will proportionately improve train operation . . . . . .

WESTINGHOUSE AIR BRAKE CO.

General Office and Works Wilmerding, Penna.

(1282)

CAMEL YOUNGSTOWN
Freight Car Door Fixtures
Corrugated Steel Freight Car Doors
CAMEL SALES COMPANY 332 South Michigan Avenue CHICAGO, ILLINOIS

"TIGER" BRONZE
ENGINE CASTINGS
STRONG TOUGH
ANTI-FRICTIONAL EASILY MACHINED
NATIONAL BEARING METALS CORP.
ST. LOUIS, MO.
New York, N. Y. Jersey City, N. J. Pittsburgh, Pa. Meadville, Pa Portsmouth, Va. St. Paul, Minn.
3

SUNBEAM HEADLIGHTS WILL OUTLAST the LOCOMOTIVE -

Rust-Proof Headlight No. 4414
STURDILY constructed of Rust Proof Steel, Sunbeam Headlights are built for permanent dependability. They will resist wear and tear longer than the locomotive to which they are applied. Available in 12 inch and 14-inch sizes, with glass reflectors, Sunbeam Headlights afford low-cost lighting service, because they need never be replaced
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SUNBEAM ELECTRIC MFG. CO.
NEW YORK SAN FRANCISCO PHILADELPHIA EVANSVILLE, INDIANA, U. S. A. DENVER RICHMOND INDIANAPOLIS

BELMONT PHILADELPHIA IRON NEW YORK WORKS EDDYSTONE
BELMONT INTERLOCKING CHANNEL FLOOR
for
RAILROAD BRIDGES & BUILDINGS
STRUCTURAL STEEL—RIVETED AND ARC WELDED
Write for Catalogue
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EDGEWATER STEEL COMPANY
PITTSBURGH, PA.
Details of our products appeared in the following issues of *Railway Age* during 1933, 1934, 1935:
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Steam and Electric Specialties
for
Passenger Car Heating
GOLD CAR HEATING & LIGHTING CO.
NEW YORK

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THE Railway Educational Bureau, Omaha, Neb., offers a distinctive education service for Supervisors and other employees. Write for FREE Special Bulletin.

FOR SALE

GAS ELEC.—Comb. Pass. Bag. & Mail—2 cars All-steel, modern, built 1926.
BAGGAGE CARS — ONE or MORE, 60 ft. wood body, steel underframe, 4-wheel steel trucks. Quick delivery.
OFFICE CAR—71 ft. 10 people, equipped. Very serviceable—bargain.

Iron & Steel Products, Inc.
Railway Exchange
Chicago, Ill.

FOR SALE

MONITOR TYPE (All Steel) Shop Bldg. 445' x 730' (new—unused—unerected). 5 units ea. 89' 0" wd. 25' 0" to Crane Rail and 33' 0" to bottom of trusses. 4100 tons. Drawings available. Can be shipped from seaboard. Call, write or wire! Iron and Steel Products, Inc., Railway Exchange, Chicago, Ill.

Your classified advertisement should appear in this section

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WANTED: Pacific Coast salaried representative industrial and railway supply field; mechanical training; under 40 years; hard position; exceptional man required. Address Box 910, *Railway Age*, 105 West Adams Street, Chicago.

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Inspection—Tests—Consultation
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The Theory of Vibrations for Engineers

By E. B. Cole, M.Sc.

Lecturer in Mechanical Engineering, University of Liverpool

AN intermediary treatise paving the way for higher study of the subject. Since the introduction of high speed machinery the occurrence of vibration has become an engineering problem of special importance. This new English book furnishes a knowledge of the fundamental principles of the theory and the methods employed for eliminating the trouble

CONTENTS

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1935. 270 pages, 115 diagrams, 5¾ x 9 inches, cloth, $4.50.

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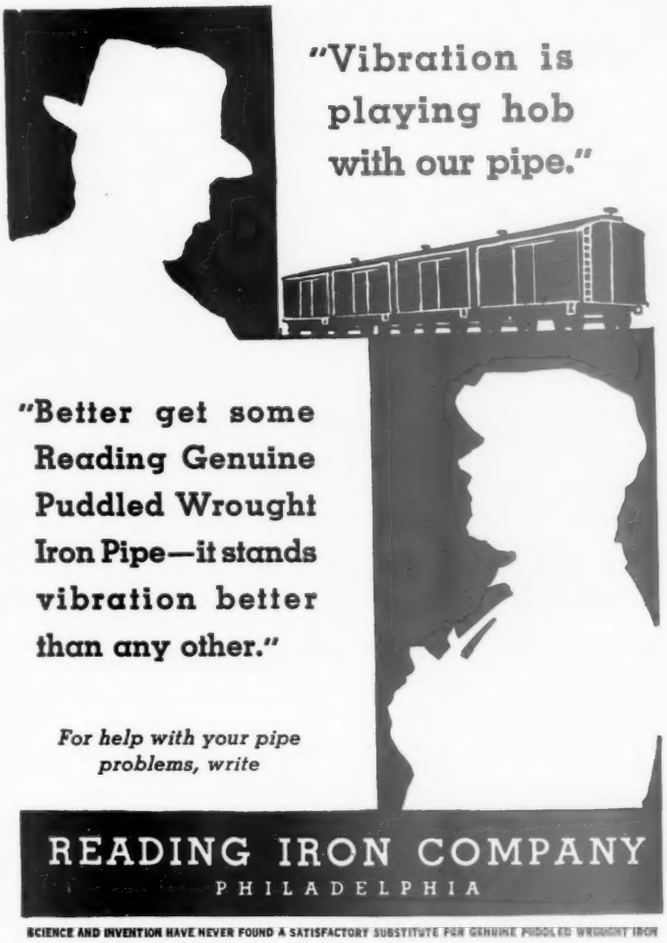
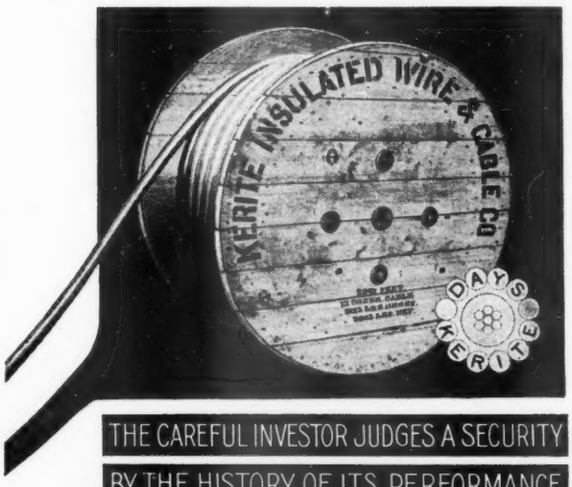
30 Church Street, New York


"Vibration is playing hob with our pipe."
"Better get some Reading Genuine Puddled Wrought Iron Pipe—it stands vibration better than any other."
For help with your pipe problems, write
READING IRON COMPANY
PHILADELPHIA
SCIENCE AND INVENTION HAVE NEVER FOUND A SATISFACTORY SUBSTITUTE FOR GENUINE PUDDLED WROUGHT IRON



THE CAREFUL INVESTOR JUDGES A SECURITY
BY THE HISTORY OF ITS PERFORMANCE
KERITE
IN THREE-QUARTERS OF A CENTURY OF
CONTINUOUS PRODUCTION HAS ESTABLISHED
A RECORD OF PERFORMANCE
THAT IS UNEQUALLED IN THE HISTORY OF
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THE KERITE INSULATED WIRE & CABLE COMPANY INC
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Journal Bearings

AND

Bronze Engine Castings

New York **Chicago**

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CROSSHEAD Shoes made of HUNT-SPILLER *Air Furnace* GUN IRON greatly reduce wear. Use of this uniform wear-resisting material helps tremendously to eliminate destructive crosshead pounds — to prolong the life of vital running-gear parts — and to insure maximum trouble-free locomotive operation at minimum up-keep expenditures.

To obtain the utmost possible economies, equip all of your locomotives with HUNT-SPILLER *Air Furnace* GUN IRON.

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FEWER KEY STROKES

Two or more keys can be depressed at a single stroke.

INSTANT TOTALS

To take a total, depress the total key. At this single motion the machine operates and prints the total.

SIMPLE SUBTRACTION

To subtract, touch the "minus" bar. To add, touch the "plus" bar. Subtraction is as fast as addition.

This Burroughs Adding Machine has many new, improved features that make figuring faster, easier, more accurate. It eliminates many needless motions. It provides many operating short-cuts *POSSIBLE ONLY* on the standard visible keyboard. It is also typically Burroughs in workmanship, quality and long life. For a demonstration or descriptive folder, call or write the local Burroughs office.

BURROUGHS ADDING MACHINE COMPANY
DETROIT, MICHIGAN

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